



Five-Year Review Report

Second Five-Year Review Report for Galen Myers Dump/Drum Salvage Osceola St. Joseph County, Indiana

September 2005

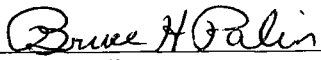
PREPARED BY:

Indiana Department of Environmental Management

For

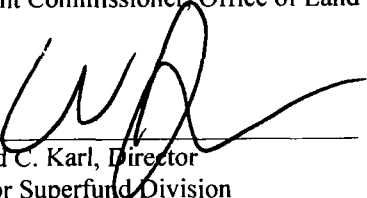
U.S. Environmental Protection Agency
Region 5

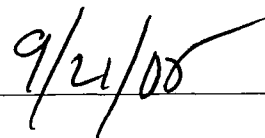
Approved by:


Bruce H. Palin
Assistant Commissioner, Office of Land Quality
IDEM

Date:


9/16/05


for Richard C. Karl, Director
Director Superfund Division
U.S. EPA, Region 5


9/21/05

**Galen Myers Dump/Drum Salvage
Osceola, Indiana
Second Five-Year Review Report**

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**Institutional Controls Tracking System
Tier 1 Data Entry Collection Form**

Region 5

Purpose:

- *To provide an easy-to-use format for site managers to use in gathering IC information
- *To provide ICTS Data Entry Staff with information that can easily be entered into ICTS

Key guidelines (*Please read!!!*):

- * Keep track of assumptions made as you fill out the form; include these in a separate document that can be attached to the form (This will help you as follow-up actions are identified)
- * Data should reflect *current* site conditions as known by the user or documented in the site files
- * Many answers will rely on best professional judgement
- * Information entered into ICTS is *not* final and will *not* be considered decisional
- * Data in ICTS is for internal purposes only

Instructions

Notes are provided throughout the form to assist you in entering the data. *These are very important to follow, please read them carefully.* Further information can be found in "ICTS Tier 1 Data Entry Guidance and Assumptions."

Lists of choices are provided in an attachment for the following data categories: Objective by Media, Instrument Type, and Data Source Type. Please use the best fit from these lists first. As needed, you can add details to the prescribed language and/or add something that is not covered by the choices given in the lists.

Please return this form to your RRS Section Chief by June 4, 2004.

Please contact the Regional IC Program Coordinator, Sheri Bianchin at 6-4745, or the IC Legal Coordinator, Janet Carlson at 6-6059, if you have any questions.

SITE INFO	
Note: If your site has multiple OUs at which Unrestricted Use/Unlimited Exposure is not met, you may need to complete a form for each. Add the OU to the Site Name category.	
Site Name GALEN MIERS DUAP /	State IN
DRUM SALVAGE	
RPM PAT HAMBLIN	ORC attorney KATHLEEN SCHNIEDERS

BASIC QUESTIONS

Please check all media for this site where contamination is present at a level that does **NOT** allow for unrestricted use/unlimited exposure (UU/UE).

Note: Answer this question based on the best currently available information: staff knowledge, site records. This answer should be based on current site conditions regardless of requirements in site decision documents.

Checking "None" indicates that the site has been reviewed and there is no need for ICs, it is cleaned up to a level that supports UU/UE

Soil

Groundwater



Surface Water

Sediment

Air

Other (identified specifically in Objective section)

None

Please check all media for which ICs are required (called for in decision documents).

Note: Information can be found in RODs, ROD Amendments, and ESDs. If ICs are called for but no media indicated, do NOT check any media here.

Soil

Groundwater



Surface Water

Sediment

Air

Other (identified specifically in Objective section)

OBJECTIVES

Definition: The intended goal(s) of an IC in minimizing the potential for human exposure to contamination and /or protecting the integrity of the remedy by limiting land or resource use.

Note: Please record all objectives that apply to the site. You may need to add rows. This includes objectives that, in your best professional judgement, may need to be applied to maintain protectiveness. Recording these does NOT supply a final determination of required/needed ICs; the information will provide a guide to potential follow-up activities.

A Planned Instrument is one that is in draft form, such as a draft easement. An Implemented Instrument is one that is actually established, such as an easement filled with the recorder of Deeds office. These do not refer to plans in RODs or other decision documents, but to the actual IC itself.

AIR Provide the following for each media/objective. Check all that apply.						
		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Debris Provide the following for each media/objective. Check all that apply.						
		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Debris (con't)

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Ground Water

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Drinking of Groundwater	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Other Use of Groundwater (Industrial, Food Preparation, Gardening, Agricultural, etc.)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Pumping Groundwater (Plume Movement)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input checked="" type="checkbox"/>	Other PROHIBIT FUTURE WELL INSTALLATIONS AT SITE OR IN OFF-SITE PLUME AREA	<input type="checkbox"/> Y <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	LOCAL ORDINANCE	ORDINANCE, 10/18/98	ON-SITE AND OFF-SITE

Please Print Clearly

OBJECTIVES

Ground Water

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Drinking of Groundwater	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Other Use of Groundwater (Industrial, Food Preparation, Gardening, Agricultural, etc.)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Pumping Groundwater (Plume Movement)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Please Print Clearly

OBJECTIVES**Ground Water**

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact					
<input type="checkbox"/>	Prohibit Drinking of Groundwater	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Other Use of Groundwater (Industrial, Food Preparation, Gardening, Agricultural, etc.)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Pumping Groundwater (Plume Movement)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Please Print Clearly

OBJECTIVES**Leachate**

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Residuals

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Please Print Clearly

OBJECTIVES

Sediment

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

Sludge

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Soil						
Provide the following for each media/objective. Check all that apply.						
		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Soil

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Solid Waste

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Subsurface Soil

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Surface Soil

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Recreational Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Residential Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit School/Daycare Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Utility Worker/Excavation Exposure Scenario	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

OBJECTIVES

Surface Water

Provide the following for each media/objective. Check all that apply.

		Planned Instrument?	Implemented Instrument?	Description (optional)	Supporting Doc. (Date)	Location: On-Site, Off-Site or OU
<input type="checkbox"/>	Prohibit Aquatic Food Consumption	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Dermal Contact	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Drinking of Surface Water	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Ingestion Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Inhalation Exposure	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Prohibit Other Use of Surface Water (Industrial, Food Preparation, Gardening, Agricultural, Etc.)	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Protect Integrity of an Engineered Remedy	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Educate	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Provide Information to Modify Behavior	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			
<input type="checkbox"/>	Other	<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N			

INSTRUMENTS

Definition: The administrative and/or legal mechanism by which the objective(s) are implemented.

Note: You may need to add rows. It may be necessary to consult ORC attorneys for this data category.

Please attach fully executed IC Instruments.

Enforcement

Provide the following for each media/objective checked:

	Category	Type	Use Restrictions Specified in Instrument	Planned Implement. Date	Actual Implement Date	Issuing Org.	Instrument Name and/or ID #
<input type="checkbox"/>	Administrative Order on Consent (AOC)						
<input type="checkbox"/>	Consent Decree (CD)						
<input type="checkbox"/>	Contract						
<input type="checkbox"/>	Federal Interagency Agreement						
<input type="checkbox"/>	RCRA 3008 (h) Compliance Order						
<input type="checkbox"/>	RCRA Closure Permit						
<input type="checkbox"/>	RCRA Compliance Schedule						
<input type="checkbox"/>	RCRA Corrective Action Order						
<input type="checkbox"/>	RCRA Exposure Information Report						
<input type="checkbox"/>	RCRA Inspection Report						
<input type="checkbox"/>	RCRA Operating Permit - Part A						
<input type="checkbox"/>	RCRA Operating Permit - Part B						
<input type="checkbox"/>	RCRA Permit Modification - Part A						
<input type="checkbox"/>	RCRA Permit Modification - Part B						
<input type="checkbox"/>	RCRA Post-Closure Permit						
<input type="checkbox"/>	Report of Spill or Release						
<input type="checkbox"/>	Unilateral Administrative Order						

Please Print Clearly

INSTRUMENTS

Government

Provide the following for each media/objective checked:

	Category	Type	Use Restrictions Specified in Instrument	Planned Implementation Date	Actual Implementation Date	Issuing Org.	Instrument Name and/or ID #
<input type="checkbox"/>	Base Use Plan						
<input type="checkbox"/>	Federal Agency Instruction						
<input type="checkbox"/>	Federal Agency Permit - Alteration						
<input type="checkbox"/>	Federal Agency Permit - Building						
<input type="checkbox"/>	Federal Agency Permit - Demolition						
<input type="checkbox"/>	Federal Agency Permit - Development						
<input type="checkbox"/>	Federal Agency Permit - Excavation						
<input type="checkbox"/>	Federal Agency Permit - GW Management						
<input type="checkbox"/>	Federal Agency Permit - Unspecified Type						
<input type="checkbox"/>	Federal Agency Permit - Well Drilling						
<input type="checkbox"/>	Grant of Environmental Resource						
<input checked="" type="checkbox"/>	Groundwater Protection Zone	LOCAL	ORDINANCE GROUNDWATER PROTECTION ORDINANCE		10/20/98	COUNTY HEALTH DEPT	ORDINANCE
<input type="checkbox"/>	Groundwater Use Regulation						
<input checked="" type="checkbox"/>	Local Ordinance	LOCAL	ORDINANCE NEW WELL PERMIT PROCESS		10/20/98	COUNTY HEALTH DEPT	ORDINANCE
<input type="checkbox"/>	Local Permit - Alteration						
<input type="checkbox"/>	Local Permit - Building						
<input type="checkbox"/>	Local Permit - Demolition						
<input type="checkbox"/>	Local Permit - Development						
<input type="checkbox"/>	Local Permit - Excavation						
<input type="checkbox"/>	Local Permit - Groundwater Mgmt.						
<input type="checkbox"/>	Local Permit - Unspecified Type						

INSTRUMENTS

Government (con't)

Provide the following for each media/objective checked:

<input checked="" type="checkbox"/>	Local Permit - Well Drilling	LOCAL	ORDINANCE	NEW WELL PERMIT PROCESS		10/20/98	COUNTY HEALTH DEPT	ORDINANCE
<input type="checkbox"/>	Overlay Zoning	MASSACHUSETTS						
<input type="checkbox"/>	State Legislation							
<input type="checkbox"/>	Subdivision Regulation							
<input type="checkbox"/>	Well Drilling Regulation							
<input type="checkbox"/>	Zoning Amendment							
<input type="checkbox"/>	Zoning Ordinance							
<input type="checkbox"/>	Zoning Variance							

Informational

Provide the following for each media/objective checked:

	Category	Type	Use Restrictions Specified in Instrument	Planned Implementation Date	Actual Implementation Date	Issuing Org.	Instrument Name and/or ID #
<input type="checkbox"/>	Advisory - Agricultural						
<input type="checkbox"/>	Advisory - Drinking Water						
<input type="checkbox"/>	Advisory - Fishing						
<input type="checkbox"/>	Advisory - Food						
<input type="checkbox"/>	Advisory - Health						
<input type="checkbox"/>	Advisory - Swimming						
<input type="checkbox"/>	Advisory - Unspecified Type						
<input type="checkbox"/>	Announcement - Radio						
<input type="checkbox"/>	Announcement - Television						
<input type="checkbox"/>	Announcement - Unspecified Type						
<input type="checkbox"/>	Listing - Local Hazardous Waste Registry						
<input type="checkbox"/>	Listing - Military Hazardous Waste Registry						

INSTRUMENTS

Informational (con't)

Provide the following for each media/objective checked:

<input type="checkbox"/>	Listing - State Hazardous Waste Registry							
<input type="checkbox"/>	Listing - Unspecified Type							
<input type="checkbox"/>	Notice - Deed Notice							
<input type="checkbox"/>	Notice - Notice to State Regulators Before Changes in Land Ownership							
<input type="checkbox"/>	Notice - Notice to State Regulators Before Changes in Land Use							
<input type="checkbox"/>	Notice - Unspecified Type							
<input type="checkbox"/>	One Call System - Local							
<input type="checkbox"/>	One Call System - State							
<input type="checkbox"/>	One Call System - Unspecified Type							
<input type="checkbox"/>	Public Education - Brochure							
<input type="checkbox"/>	Public Education - Direct Mailing							
<input type="checkbox"/>	Public Education - Door Hanger							
<input type="checkbox"/>	Public Education - Fact Sheet							
<input type="checkbox"/>	Public Education - Unspecified Type							
<input type="checkbox"/>	Publication - Federal Register							
<input type="checkbox"/>	Publication - Internet Announcement							
<input type="checkbox"/>	Publication - Newspaper/Press Release							
<input type="checkbox"/>	Publication - State Register							
<input type="checkbox"/>	Publication - Unspecified Type							

INSTRUMENTS

Proprietary

Provide the following for each media/objective checked:

		Category	Type	Use Restrictions Specified in Instrument	Planned Implementation Date	Actual Implementation Date	Issuing Org.	Instrument Name and/or ID #
<input type="checkbox"/>	Deed Restriction of Unspecified Type							
<input type="checkbox"/>	Easement - Affirmative							
<input type="checkbox"/>	Easement - Appurtenant							
<input type="checkbox"/>	Easement - Conservation							
<input type="checkbox"/>	Easement - In Gross							
<input type="checkbox"/>	Easement - Negative							
<input type="checkbox"/>	Easement - Unspecified Type							
<input type="checkbox"/>	Equitable Servitude							
<input type="checkbox"/>	Restrictive Covenant							
<input type="checkbox"/>	Reversionary Interest							

CONTACTS

Note: The following roles describe the function an organization or individual serves. If a specific person is not yet identified for a role, indicate this with a "?." If a role is not needed or expected to be needed, indicate this with "N/A." If other contacts exist please add lines and list them.

Role	Organization	Name	Phone	Email
Site Manager	EPA	PATRICK HAMBLIN	312-886-6312	HAMBLIN.PATRICK@EPA.GOV
EPA Attorney	EPA	KATHLEEN SCHNIEDERS	312-353-8912	SCHNIEDERS.KATHLEEN@EPA.GOV
IC Implementation				
IC Enforcement				
IC Monitoring				
IC Monitoring Reporting				
IC Termination Initiation				
IC Termination Approval				
Federal Facility Agency Contact				

DATA SOURCES

Note: Please enter all supporting documentation. If in doubt- include it. For files you wish to attach, please send these to the IC Coordinators electronically as well. For Internet resources, you can paste the url address to this document and also send the link to the IC Coordinators

		Local Provide the following for each media/objective checked:					
		Document or Application Title and/or ID	Source Category (Local, State, Tribal, or EPA)	Issuing Org	Source Type	User Rights (Public, Intranet, Password)	Url or file location
<input type="checkbox"/>	Information/Unenforceable						
<input type="checkbox"/>	Order						
<input checked="" type="checkbox"/>	Specific Permitting Ordinance	GROUNDWATER USE ORDINANCE	LOCAL - COUNTY	COUNTY HEALTH DEPT.	ORDINANCE - TITLE	PAGE ATTACHED	
<input type="checkbox"/>	Zoning						

		State Provide the following for each media/objective checked:					
		Document or Application Title and/or ID	Source Category (Local, State, Tribal, or EPA)	Issuing Org	Source Type	User Rights (Public, Intranet, Password)	Url or file location
<input type="checkbox"/>	RCRA 3008 (h) Compliance Order						
<input type="checkbox"/>	RCRA Compliance Schedule						
<input type="checkbox"/>	RCRA Corrective Action Order						
<input type="checkbox"/>	RCRA Exposure Information Report						
<input type="checkbox"/>	RCRA Inspection Report						
<input type="checkbox"/>	RCRA Operating Permit - Part A						
<input type="checkbox"/>	RCRA Operating Permit - Part B						
<input type="checkbox"/>	RCRA Permit Modification - Part A						
<input type="checkbox"/>	RCRA Permit Modification - Part B						
<input type="checkbox"/>	RCRA Post-Closure Permit						
<input type="checkbox"/>	Real Estate Common Law						
<input type="checkbox"/>	Report of Spill or Release						

DATA SOURCES

State (con't)

Provide the following for each media/objective checked:

	Document or Application Title and/or ID	Source Category (Local, State, Tribal, or EPA)	Issuing Org	Source Type *use attachment	User Rights (Public, Intranet, Password)	Url or file location
<input type="checkbox"/> Statute/Ordinance - Administrative Order on Consent						
<input type="checkbox"/> Statute/Ordinance - Consent Decree						
<input type="checkbox"/> Statute/Ordinance - Information/Unenforceable						
<input type="checkbox"/> Statute/Ordinance - Permit						
<input type="checkbox"/> Statute/Ordinance - Unilateral Administrative Order						

Tribal

Provide the following for each media/objective checked:

	Document or Application Title and/or ID	Source Category (Local, State, Tribal, or EPA)	Issuing Org	Source Type *use attachment	User Rights (Public, Intranet, Password)	Url or file location
<input type="checkbox"/> Information/Unenforceable						
<input type="checkbox"/> Local Permit						
<input type="checkbox"/> Order						
<input type="checkbox"/> Ordinance						
<input type="checkbox"/> Treaty						
<input type="checkbox"/> Other						

DATA SOURCES

USEPA

Provide the following for each media/objective checked:

	Document or Application Title and/or ID	Source Category (Local, State, Tribal, or EPA)	Issuing Org	Source Type *use attachment	User Rights (Public, Intranet, Password)	Url or file location
<input type="checkbox"/>	Administrative Order on Consent					
<input type="checkbox"/>	Close Out Report					
<input type="checkbox"/>	Consent Decree					
<input type="checkbox"/>	Explanation of Significant Differences					
<input type="checkbox"/>	Final Decision					
<input checked="" type="checkbox"/>	Five Year Review	FIVE YEAR REVIEW	STATE	EPA	MAED COPY ATTACHED	
<input type="checkbox"/>	Health Assessment					
<input type="checkbox"/>	Informational/Unenforceable					
<input type="checkbox"/>	Local Permit					
<input type="checkbox"/>	Notice of Intent to Delete					
<input type="checkbox"/>	Notice of Intent to Partially Delete					
<input type="checkbox"/>	RCRA 3008 (h) Compliance Order					
<input type="checkbox"/>	RCRA Closure Permit					
<input type="checkbox"/>	RCRA Compliance Schedule					
<input type="checkbox"/>	RCRA Corrective Action Order					
<input type="checkbox"/>	RCRA Exposure Information Report					
<input type="checkbox"/>	RCRA Inspection Report					
<input type="checkbox"/>	RCRA Operating Permit - Part A					
<input type="checkbox"/>	RCRA Operating Permit - Part B					
<input type="checkbox"/>	RCRA Permit Modification - Part A					

Please Print Clearly

DATA SOURCES

USEPA (con't)

Provide the following for each media/objective checked:

<input type="checkbox"/>	Ready for Reuse Determination						
<input checked="" type="checkbox"/>	Record of Decision	1995 ROD	EPA	EPA	HARD COPY OF SIGNATURE PAGE & REFERENCE TO IC.		
<input type="checkbox"/>	Record of Decision Amendment						
<input type="checkbox"/>	Report of Spill or Release						
<input type="checkbox"/>	Response to Comments						
<input type="checkbox"/>	Statement of Basis						
<input type="checkbox"/>	Unilateral Administrative Order						

Additional Information

Note: The intent of this section is to provide an opportunity to capture any more pertinent IC information about the site. For example, have you run into any implementation problems? Do you know if any IC objective has been breached? Please provide all relevant information in the space below.

Please Print Clearly

Data Quality Certification and Contact Information

Note: These categories are meant to guide you. It is expected that each Region will have a different structure for data quality and review. It is important to document those that review is done and who does it.

Completed by: (RPM)	Name <u>PATRICK HAMBLIN</u>	Date <u>6/2/04</u>
	Title <u>RPM</u>	Signature <u>[Signature]</u>
	Phone <u>312-886-6312</u>	
Reviewed by: (RRS Section or Branch Chief)	Name	Date
	Title	Signature
	Phone	
Date delivered to Debra Potter's Inbox	Name	Date
	Title	Signature
Date received by PMIS Staff by:	Name	Date
	Title	Signature
Data Entry Completed by: (PMIS Staff)	Name	Date
	Title	Signature
	Phone	
Data entry quality control completed by: (PMIS Staff)	Name	Date
	Title	Signature
	Phone	
Data quality assurance completed by: (Program/Legal IC Coordinators)	Name	Date
	Title	Signature
	Phone	

Five-Year Review Report

Second Five-Year Review Report
for
Galen Myers Dump/Drum Salvage
Osceola
St. Joseph County, Indiana

September 2005

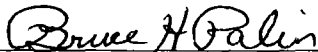
PREPARED BY:

Indiana Department of Environmental Management

For

U.S. Environmental Protection Agency
Region 5

Approved by:



Bruce H Palin
Assistant Commissioner, Office of Land Quality
IDEM

Date:



Richard C. Karl, Director
Director Superfund Division
U.S. EPA, Region 5

**Galen Myers Dump/Drum Salvage
Osceola, Indiana
Second Five-Year Review Report**

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St. Joseph County Health Department

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- Appendix D - List of Documents Reviewed
- Appendix E - June 8, 2005, Site Inspection Photographs
- Appendix F - June 8, 2005, IDEM letter regarding Five-Year Review site inspection

List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
CA	Cooperative Agreement (CA)
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
GAC	Granulated Activated Carbon
ESD	Explanation of Significant Differences
HI	Hazard Index
IC	Institutional Control
IAC	Indiana Administrative Code
IDEM	Indiana Department of Environmental Management
ISBH	Indiana State Board of Health
LTRA	Long-Term Response Action
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mg/kg	Milligram per Kilogram
NAAQ	National Primary and Secondary Ambient Air Quality Standards
NCP	National Contingency Plan
NPL	National Priorities List
O&F	Operational and Functional
O&M	Operation and Maintenance

PRG	Preliminary Remediation Goal
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RA	Remedial Action
RD	Remedial Design
RDFI	Remedial Design Field Investigation
RI/FS	Remedial Investigation/Feasibility Study
RD/RA	Remedial Design/Remedial Action
ROD	Record of Decision
RPM	EPA Remedial Project Manager
SSL	Soil Screening Level
SJCHD	St. Joseph County Health Department
SPM	State Project Manager
SVOC	Semi-Volatile Organic Compound
TAT	Technical Assistance Team
TBC	To Be Considered
TCE	Trichloroethene or Trichloroethylene
TCLP	Toxicity Characteristic Leachate Procedure
µg/l	Microgram per Liter
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Executive Summary

The Galen Myers Dump/Drum Salvage (Galen Myers) Superfund site is located in Osceola, Indiana. The selected remedy for the site was specified in the 1995 Record of Decision (ROD), and modified by the 1998 Explanation of Significant Difference. Prior to the ROD the U.S. EPA conducted two removal actions, and a third removal action is a component of the 1995 ROD. In 1985, U.S. EPA conducted a removal action that included the off-site disposal of flammable solids, crushed drums and non-hazardous soils. In 1987, the U.S. EPA provided bottled water and installed filtration units at eight residences under a second removal action. The third removal action that extended an alternate water supply from the Mishawaka Utilities to the affected area and was completed in June 1996. The remedial action's September 29, 1995, Record of Decision (ROD) addressed the soil and groundwater contamination at the site that was detected during the Remedial Investigation (RI). Soil sample results collected during the Remedial Design Field Investigation (RDFI) indicated that further soil excavation at the site property was not required since the levels of contamination were below the trichloroethene (TCE) soil cleanup goal. An Explanation of Significant Difference (ESD) was signed on September 30, 1998, to document this change. IDEM prepared a Preliminary Closeout Report in September 1998, to document the completion of the site property RD activities (soil sampling, groundwater screening to determine long-term monitoring well locations, and preparation of the ESD). The remedy at the site became operational and functional (O&F) in June 2003, and is currently in Long-Term Response Action (LTRA). LTRA groundwater and surface water monitoring is required.

A protectiveness statement of the remedy cannot be made at this time until further information is obtained. Further information will be obtained when IDEM resumes groundwater and surface water monitoring, conducts soil vapor screening, and confirms Institutional Controls (ICs) are in place and working effectively.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Galen Myers Dump/Drum Salvage		
EPA ID (from WasteLAN): IND980999635		
Region: 5	State: IN	City/County: Osceola/St. Joseph County
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Operating <input type="checkbox"/> Complete		
Multiple OUs? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Construction completion date: 06/30/2003
Has site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input type="checkbox"/> EPA <input checked="" type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Resa L. Ramsey		
Author title: State Project Manager		Author affiliation: Indiana Department of Environmental Management
Review period:** 01/14/2005 to Signature Date of this 5 year review		
Date(s) of site inspection: 06/08/2005		
Type of review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify)		
Triggering action: <input type="checkbox"/> Actual RA Onsite Construction at OU # _____ <input type="checkbox"/> Actual RA Start at OU# _____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify)		
Triggering action date (from WasteLAN): 09/28/2000		
Due date (five years after triggering action date): 09/28/2005		

* OU refers to operable unit.

** Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.

Five-Year Review Summary Form, continued.

Issues:

- 1) Long-Term Response Action (LTRA) monitoring needs to be initiated. Reinitiate monitoring well sampling efforts required in the 1995 ROD to confirm area impacted or potentially impacted by the Galen Myers site groundwater plume.
- 2) Determine if a limited soil vapor investigation should be conducted.
- 3) Conduct additional sampling to confirm that Penter's Pond does not represent an exposure pathway of concern.
- 4) An Institutional Controls Plan needs to be developed.
- 5) Determine if a deed restriction was recorded on the site property. The July 21, 1997, Exhibit 1 of the Consent for Access to Property and Environmental Response indicated the site property owner must deed restrict the property.
- 6) By declining the opportunity to connect to the municipal water during the U.S. EPA Removal Action completed in 1996, twenty-three residents assumed responsibility for the future safety of their water supply well. Recommend St. Joseph County Health Department (SJCHD) confirm if residents of 55428 Barksdale Street have maintained a water treatment system for their TCE-contaminated well or proceed accordingly under SCJHD Ordinance 24.20.150 or 24.33.05(G).
- 7) Property owner of 55660 Richwood Court agreed to abandon existing private well after connecting to municipal water. Recommend SJCHD confirms abandonment of residential well(s) at this residence.
- 8) As part of ensuring that ICs are in place and effective, confirm with SJCHD that no new wells have been installed in the area covered by the SJCHD Well Drilling and Water Supply Systems Ordinance which became effective in 1999.
- 9) Deed restrictions were not required in the ROD or ESD. However, there is concern that prospective purchasers are not being notified about the Galen Myers site and the affected surrounding properties.

Recommendations and Follow-up Actions:

- 1) Groundwater and surface water monitoring should continue to confirm that ICs are protective.
- 2) Conduct a soil vapor screening and/or assessment.
- 3) Conduct additional sampling of Penter's Pond to confirm that Penter's Pond does not represent an exposure pathway of concern.

Five-Year Review Summary Form, continued.

Recommendations and Follow-up Actions Continued:

- 4) An Institutional Controls Plan needs to be developed.
- 5) Determine if a deed restriction was recorded on the site property pursuant to "Exhibit 1 of Consent for Access to Property and Environmental Response" dated July 21, 1997. If the deed restriction was recorded, determine if it should be modified or removed.
- 6) Recommend SJCHD confirm that residents of 55428 Barksdale Street have maintained a water treatment system for their TCE-contaminated well or proceed accordingly under SCJHD Ordinance 24.20.150 or 24.33.05(G). Also inquire if SJCHD has a system in place for routine follow-up on residences that declined municipal water connections.
- 7) Recommend SJCHD confirms abandonment of residential well(s) at 55660 Richwood Court.
- 8) Confirm with SJCHD that no new wells have been installed in the area impacted by the Galen Myers plume since the SJCHD Well Drilling and Water Supply Systems Ordinance became effective in 1999. Also, inquire if anyone sought permission under the ordinance, and if so, what occurred as a result.
- 9) Determine appropriate and reasonable means of notice, if any, to prospective purchasers of properties subject to groundwater use restrictions within SJCHD Administrative Control Area.

Protectiveness Statement:

A protectiveness statement of the remedy cannot be made at this time until further information is obtained. Further information will be obtained when IDEM resumes groundwater and surface water monitoring, conducts soil vapor screening, and confirms Institutional Controls (ICs) are in place and working effectively.

Long-Term Protectiveness:

Long-term monitoring and institutional controls will continue to ensure that the remedy remains protective of human health and the environment.

Other Comments:

None

**Second Five-Year Review Report
Galen Myers Dump/Drum Salvage
Osceola, Indiana**

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The Indiana Department of Environmental Management (IDEM) is preparing this Five-Year Review report for the United States Environmental Protection Agency (U.S. EPA), Region 5, pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

"If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the result of all such reviews, and any actions taken as a result of such reviews."

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action."

IDEM conducted this five-year review of the remedy implemented at the Galen Myers Dump/Drum Salvage (Galen Myers) Superfund Site located in St. Joseph County, Penn Township, Osceola, Indiana. This review was conducted by the State Project Manager (SPM) for the entire site from January 2005 through the signature date of this Five-Year Review Report. This report documents the results of the review.

This is the second five-year review for the Galen Myers site. This statutory five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1 lists the chronology of events for the Galen Myers site.

Date	Event
1981	The St. Joseph County Health Department (SJCHD) first investigated the site in response to a nearby resident's allegations of dumping and unauthorized storage of potentially hazardous materials and submitted a complaint to the Indiana State Board of Health (ISBH).
1983	ISBH inspected the property, and U.S. EPA Region 5 Technical Assistance Team (TAT) conducted a site assessment.
1984	ISBH, U.S. EPA, and TAT reinspected the property. U.S. EPA signed an Action Memorandum authorizing CERCLA funds for a removal action at the site.
February 1985 to April 1985	U.S. EPA conducted a removal action and disposed off-site flammable solids, crushed drums and non-hazardous soils.
November 1986	IDEM (previously ISBH Land Pollution Control Division) investigation determined site property soils were still contaminated with organic compounds, and some residential wells were contaminated with TCE.
1987	U.S. EPA and IDEM conducted a joint sampling program to delineate the groundwater plume and provide an alternative drinking water supply for affected residents.
June 1988	Proposed for the National Priorities List (NPL).
March 31, 1989	Finalized on the NPL.
January 1991 to February 1994	IDEM conducted residential well sampling as part of the routine operation and maintenance program for 29 residential water filtration systems. It was determined additional residential wells were impacted by TCE. In May 1993, IDEM requested U.S. EPA to conduct a third removal action to install an alternate water supply.
June 1993 to October 1994	Remedial Investigation (RI) field activities conducted by IDEM.
June 1995	RI Report completed.
July 1995	Feasibility Study (FS) Report completed.
August 8, 1995 to September 14, 1995	Public comment period regarding FS and Proposed Plan for remedial action.
September 29, 1995	Record of Decision issued.
June 1996	U.S. EPA provided Mishawaka Utilities' water to approximately 180 homes that responded to offer for city water hookup.
September 30, 1998	IDEM prepared Explanation of Significant Differences (ESD) and Preliminary Closeout Report.

Date	Event
October 1998	IDEM completed Remedial Design Field Investigation (RDFI).
January 1, 1999	St. Joseph County Health Department Well Drilling and Water Supply Systems Ordinance became effective.
September 28, 2000	First Five-Year Review completed.
June 2003	Operational and Functional date for the groundwater component of remedy.
April 12, 2005	St. Joseph County Council adopted new Well Drilling and Water Supply Systems Ordinance amending Title 24.20 (effective in August 2005).
Ongoing	Groundwater and surface water monitoring.

III. Background

Physical Characteristics

The approximately five-acre Galen Myers Dump/Drum Salvage (Galen Myers) Superfund site is located at 11303 Edison Road in St. Joseph County, Penn Township, Osceola, Indiana. The site boundaries include Edison Road and residential properties to the south; a deciduous forest to the north; agricultural and residential properties to the west; and a commercial nursery to the east (recently closed). Additional features identified within the Galen Myers property include man-made depressions; a household waste disposal pit; several mounded wood-chip piles; and vehicles and debris scattered throughout the heavily vegetated area. The St. Joseph River is located approximately 1 1/4 miles south of the site property. The Site's location is shown in Figure 1.

Unconsolidated Pleistocene-aged glacial deposits of the Atherton Formation underlie the Galen Myers site. Drilling logs from the Remedial Investigation (RI) indicate the unconsolidated materials generally consist of sand and gravel deposits, with many silty clay layers at various depths. Extensive clay or silty clay layers, where present, can act as an aquitard, dividing the outwash deposit into what may be considered separate aquifers. This can result in semi-confined conditions within the lower portions of the aquifer. Stratigraphic information from various soil borings indicates that this semi-confining layer pinches out to the south, east, and west. Therefore, its presence does separate the outwash deposits into two separate aquifers in the immediate vicinity of the site, limiting the potential downward migration of site contaminants. Groundwater was encountered at a depth of approximately eight feet below ground surface at the site property, but downgradient of the site groundwater depth was encountered at 20 to 30 feet below ground surface. The groundwater flow is southward toward the St. Joseph River, and turns southwestward as it approaches the river. The groundwater horizontal hydraulic gradient is 0.004 feet per foot, and the flow is estimated to be between 1 foot per day and 5 feet per day.

Land and Resource Use

According to aerial photographs (circa 1965, 1967 and 1971), the secondary deciduous forest located to the north was once an orchard. A portion of the Galen Myers site may have also once been an orchard. Mr. Galen Myers was a former owner of the property. In July 1992, Mr. Robert E. Lee purchased the site property, and converted a storage shed into a temporary residence. In 1997, Mr. Rob Emmans purchased the property, and constructed a new house on the southwestern portion of the site in 1998. Mr. Doug Whittaker purchased the site property in August 2005. Current site property structures include a single-family residence and an aluminum-sided shed used to store tree-trimming equipment. No contaminants of concern above an unacceptable risk level remain in the site property soils. The primary land use in the area remains residential, agricultural, and commercial. In the spring of 1997, IDEM staff noticed a 1 3/4-acre pond (known as Penter's Pond) was being excavated due south of the site property on private property. The St. Joseph County Health Department (SJCHD) is reviewing plans for the construction of a residential subdivision that will border the northern, eastern, and western sections of the site property. Access to and use of groundwater in the area is now controlled through a SJCHD *Well Drilling and Water Supply Systems Ordinance* (Appendix A). The groundwater flow is southward toward the St. Joseph River, and turns southwestward as it approaches the river.

History of Contamination

Mr. Galen Myers operated a drum reclamation business from about 1970 to 1983. Drums from local industries were stored and recycled at the site property. The operation involved removing the tops of drums and dumping their contents into unlined pits and onto the ground surface at the site property. A comprehensive list of materials disposed at the site could not be compiled since site records identifying accepted waste streams were not discovered during inspections. Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were released into the environment when drum contents were dumped at the site property. Empty drums were sold as trash containers.

In 1981, the SJCHD investigated the Galen Myers site in response to nearby resident's allegations of dumping and unauthorized storage of potentially hazardous materials. The SJCHD inspectors observed dumping and storage activities at the site property and requested Mr. Myers to cease such operations and submitted a complaint to the Indiana State Board of Health (ISBH) Land Pollution Control Division.

Initial Response

The ISBH inspected the Galen Myers site on April 5, 1983, and observed drummed solid and liquid wastes scattered throughout the property. ISBH requested the U.S. EPA conduct a site inspection. The U.S. EPA's Technical Assistance Team (TAT) conducted a site investigation on June 3, 1983. The Myers family indicated the business was no longer in operation and they intended to dispose of the drums and other debris. However, this did not occur. The ISBH conducted another inspection on April 24, 1984. The site property appeared to be abandoned and

due to the condition of the drums on the property the ISBH requested the U.S. EPA reevaluate the site for a removal action. Based upon soil and groundwater results from the second TAT site investigation conducted on June 27, 1984, the U.S. EPA determined the site posed a direct and indirect threat to human health and the environment and warranted a removal action. On November 26, 1984, the U.S. EPA issued an Action Memorandum authoring CERCLA funds for a removal action at the site.

The U.S. EPA conducted a removal action from February 11, 1985, to April 5, 1985. Wastes disposed under this removal action included 1,800 pounds of flammable solids, 30 cubic yards of nonhazardous crushed drums, and 56 cubic yards of nonhazardous soils. Drums claimed by responsible parties were removed by May 13, 1985. Residential well samples collected from the site property and adjacent wells indicated traces of VOCs at concentrations that were below U.S. EPA Suggested No-Adverse-Response Level, now referred to as Removal Action Level. Therefore, groundwater was not addressed during this removal action.

In late 1986 to 1987, IDEM collected soil from the site property and residential well samples. In February 1987, IDEM notified the U.S. EPA that the analytical results indicated that site property soils were still significantly contaminated with organic chemicals and down gradient residential wells were contaminated with trichloroethene (TCE) at levels that the U.S. EPA considers unsafe. IDEM requested the U.S. EPA to participate in a joint sampling program to delineate the groundwater plume and provide an alternative drinking water supply for the affected residents. While confirmation sampling took place, U.S. EPA provided bottled drinking water to the affected residents. Between March 17, 1987, and April 1, 1987, IDEM sampled 15 residential wells and U.S. EPA sampled 13 residential wells. Results of the IDEM and U.S. EPA joint residential well sampling program delineated a plume of contamination approximately 148 feet wide and 2,638 feet long. The affected wells were located directly south of the site property in the direction of groundwater flow along the west side of Birch Road. To mitigate the threat of TCE contamination to the affected residents, U.S. EPA Emergency Response Section installed air stripper/granulated activated carbon filter units at two residences, whole house carbon filtration units at three residences, and point-of-use carbon filters at three residences.

IDEM performed a Preliminary Assessment of the Galen Myers site on February 17, 1987, and a report documenting the findings was issued on April 28, 1987. The site received a Hazard Ranking System score of 42.24, based upon the site's potential for causing groundwater contamination in an aquifer that supplies potable water to residents downgradient from the site property. The site was proposed for addition to the NPL in June 1988, and was finalized on the NPL in March of 1989. In 1989, IDEM signed a Cooperative Agreement with U.S. EPA to conduct a state-lead Remedial Investigation/Feasibility Study (RI/FS) at the site.

Between January 1991 and February 1994, IDEM conducted residential well sampling independent of the RI to monitor TCE migration. The maximum concentration of TCE detected was 10,932 micrograms per liter ($\mu\text{g/l}$). During this time period an additional 21 residential wells were found to be contaminated with TCE. IDEM installed six point-of-use filter systems and 15 whole house filter systems at affected residences. At this time, IDEM was monitoring the operation and maintenance of a total of 29 residential water filtration units. In May 1993, IDEM

requested U.S. EPA to consider the Galen Myers site for an emergency removal action to expedite a permanent solution for the residents who had water filtration units and others that could be potentially exposed through migration of the TCE in the groundwater. In January 1994, U.S. EPA approved funding for a second removal action to construct a waterline extension from the Mishawaka Utilities to the affected area. In September 1994, the design work was completed and construction activities were initiated. By June 1996, U.S. EPA provided municipal water to approximately 180 residences that responded to the offer for city water hookup.

Twenty-three homeowners decided to not hook up to the alternate water supply (see Figure 2). Institutional control restrictions on new well installation via a St. Joseph County groundwater protection ordinance were enacted on January 1, 1999.

Roy F. Weston, Inc., was contracted by IDEM to assist with the RI/FS activities. The RI/FS field investigation to characterize the extent of soil, subsurface, and groundwater contamination at the site was initiated in June 1993 and completed in August 1995. Field activities conducted during the RI included: a ground control survey; electromagnetic survey; test pit excavations; a PETREX soil gas survey; and ground water samples collected from twenty-one monitoring wells and 65 residential wells. The RI Report was completed in June 1995 and the FS Report was completed in July 1995. The major contaminant of concern for soil and groundwater is TCE. The FS Report presented a detailed analysis of alternatives to address the site contamination. IDEM evaluated three soil remediation alternatives and four groundwater remediation alternatives. On September 29, 1995, the ROD for the site was signed, which documented U.S. EPA's and IDEM's selected remedy for the site.

Basis for Taking Action

Remedial action objectives and preliminary remediation goals (PRGs) were developed during the RI to define goals of the remedial action, and to determine the extent of remediation needed at the Galen Myers site. Remedial action objectives were obtained from federal and state applicable or relevant and appropriate requirements (ARARs), and soil screening levels (SSLs) were used to determine PRGs. The Safe Drinking Water Act Maximum Contaminant Level (MCL) was used for the groundwater cleanup levels.

The RI Report and ROD document TCE as the contaminant of concern for groundwater and site property soil. TCE will evaporate rapidly from soils or surface water; leach rapidly from soils to groundwater because of its low adsorption coefficient with sandy soils; and biodegrades very slowly in water under most conditions.

Groundwater is the primary contaminant pathway for the Galen Myers site. The aquifer is the only source of groundwater in the area. TCE was detected in numerous residential wells. Without monitoring, the potential for horizontal migration of the contaminant plume poses a future threat to human health for residences not currently impacted. While migration of contaminants from groundwater to surface water may occur, it is likely significant dilution of the contaminants will occur as groundwater mixes with surface water. Based upon the RI, the extent

of the TCE groundwater plume exceeding the MCL (5 µg/l) is estimated at 5,000 feet long and an average of 173 feet wide (see Figure 3).

TCE in groundwater will exist in the miscible phase and move with the groundwater gradient. The sorption of TCE onto the organic fraction of an aquifer will retard its mobility in the groundwater resulting in TCE having a lower than groundwater flow velocity. The groundwater flow in the vicinity of the site is estimated to be between 1 foot per day to 5 feet per day (365 ft/yr to 1,825 ft/yr). However, the velocity of TCE in the groundwater plume was estimated to be 192 feet per year. TCE also migrates vertically at a much slower rate. The nonaqueous phase of TCE can remain in pores in the subsurface and act as source of TCE contamination for a long time. Based upon the estimated TCE velocity, the travel time for TCE to the St. Joseph River is estimated to be 14 years. Microbial degradation of TCE by sequential dehalogenation may produce cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride.

During the RI, groundwater was investigated by analyzing water collected from three lead screen augering locations, sixty-five residential wells, and twenty-one monitoring wells. Groundwater results ranged from: a) nondetect to 31 µg/l TCE in lead auger screen locations, b) nondetect to 4,800 µg/l TCE in monitoring wells, and c) nondetect to 3,100 µg/l TCE in residential wells. TCE is likely migrating in an upper portion of the aquifer since it was not detected below the glacial till unit.

In addition to TCE, other organic chemicals detected in groundwater above MCLs were methylene chloride, bis(2-ethylhexyl)phthalate and 1,2-dichloropropane. Methylene chloride and bis(2-ethylhexyl)phthalate were not included as chemicals of concern because they are common laboratory contaminants, were detected in all laboratory blank samples, were not detected in site property monitoring wells, and their detections did not follow a distinct pattern. 1,2-dichloropropane was not considered a chemical of concern since it was only detected in two residential wells, of which only one sample exceeded the MCL.

Inorganic chemicals are present in groundwater at naturally occurring levels. Background levels of unfiltered inorganics in residential and monitoring wells were compared to downgradient wells. The inorganics detected above drinking water standards were thallium and antimony. Antimony was eliminated as a chemical of concern because its presence exceeding the MCL is likely representative of the general water quality of the area. Thallium was eliminated as a chemical of concern because it was detected in only one residential well sample and may not be representative of the general water quality of the area.

Source characterization at the Galen Myers site was evaluated by conducting a geophysical survey and excavating test pits in anomalous areas to identify any buried sources. A ground control survey was conducted to identify surface features and to establish horizontal control points. Surface features (i.e., debris, drums, stressed vegetation, soil discoloration, foundations, and etc.) were mapped with grid coordinates and presented on a site plan map. The control points were used for establishing site property and off-site grids for soil geophysical surveys, soil sampling, and the PETREX soil gas sampling. In June 1993, Roy F. Weston, Inc., conducted an electromagnetic survey. In July 1993, U.S. EPA conducted a ground penetrating radar survey to

confirm the electromagnetic survey results. Seven test pits were excavated to verify results of the geophysical survey. Based upon the investigations, there are no buried or surface sources. Soil samples were collected from four of the test pits.

Site property surface soil, subsurface soil and PETREX soil gas samples were collected to determine if residual contamination remained after the U.S. EPA removal action. The objective of the PETREX soil gas survey was to locate potential source areas and the groundwater plume. A total of 445 PETREX samplers were installed along 26 east-west trending lines. The PETREX sampler consists of two or three ferromagnetic wires coated with an activated carbon solvent. Calibration tubes were installed concurrently with the PETREX tubes in order to determine the exposure period. The Northeast Research Institute, Inc., determined that sixteen days was a sufficient exposure time. After the tubes were removed from the ground, they were capped and sent to the laboratory for analysis. Each ferromagnetic wire is placed directly into a mass spectrometer where the absorbed VOCs and SVOCs are thermally desorbed, ionized, separated according to ion mass, and counted. The ion count gives a relative intensity associated with each compound; it does not indicate a concentration. Results of the investigation indicated the soil gases contained the chlorinated organic compounds TCE and tetrachloroethene, and the aromatic petroleum hydrocarbon compounds benzene, toluene, ethylbenzene, and xylene.

No areas of high surficial soil contamination were found at the site during the RI. TCE was detected in 1 out of 18 surface soil locations at the former Galen Myers site at a concentration of 2 µg/kg. TCE was detected in 1 out of 7 test pits and ranged from 23 to 1,400 µg/kg (six-foot depth). TCE was detected in two out of 10 soil boring locations as high as 2,100 µg/kg (5 to 7 feet depth).

The April 1995, Ecological Assessment and the Baseline Risk reports were prepared by Roy F. Weston, Inc., and approved by IDEM in consultation with the U.S. EPA. Both risk assessments were based upon background information and analytical data collected during the RI. The screening-level ecological risk assessment determined the potential for adverse impacts associated with exposure of terrestrial and aquatic wildlife species is expected to be limited. No species were expected to receive large exposure to site-related chemicals of concern. The baseline risk assessment evaluated the risk posed by the site property soils for residential use and excavation activities at the site. Risk based levels for human health were determined to not be necessary for the soil cleanup as the risk assessment determined that human health impacts from soil exposure were within the 1×10^{-6} to 1×10^{-4} acceptable carcinogenic human health range and below the noncarcinogenic Hazard Index of 1. However, it was determined that there are potential risks to the public health from exposure to contaminated groundwater. The risk assessment evaluated exposure to VOCs, SVOCs, pesticides and inorganics in the groundwater. Sixty-five residential wells were sampled. The assessment determined: a) 34 residences were below the 1×10^{-6} cancer risk, b) 22 residences were within the 1×10^{-6} to 1×10^{-4} acceptable carcinogenic range, and c) 9 residences exceeded the 1×10^{-4} cancer range. Six of the nine residences that exceeded the 1×10^{-4} cancer range had water filters, which were installed and maintained by IDEM. If the filters are properly used and maintained, receptors at these six homes will not be exposed to contaminants at the levels detected in the unfiltered groundwater that was collected. For the remaining three residences, the total lifetime cancer risk is due to

exposure to arsenic, which may naturally occur at levels that pose a risk. The noncarcinogenic health risk associated with exposure to groundwater were found to exceed the Hazard Index (HI) of 1 as follows: a) ingestion of TCE in groundwater by a child (8.6 HI) and an adult (3.7 HI); b) ingestion of manganese by a child (34 HI) and an adult (14 HI); c) dermal absorption of TCE in groundwater by a child (3.9 HI) and an adult (1.7 HI); and d) inhalation of TCE in vapors by a child (3.9 HI).

In July 1995, Roy F. Weston, Inc. prepared a Supplemental Baseline Risk Assessment Report for IDEM. As part of remedial activities at the Galen Myers site, residences within the area of impacted groundwater were being connected to city water. Several residents in the area requested to maintain their private wells for outdoor uses. Center-of-plume residential well data were used to evaluate risks from watering a lawn, irrigating a garden, filling a swimming pool, and washing a car. Direct contact, incidental ingestion and inhalation exposures were evaluated for the swimming pool scenario. The supplement concluded risks associated with the swimming pool scenario slightly exceeded acceptable carcinogenic levels. Cancer risk associated with the other miscellaneous use of groundwater scenarios fell within the acceptable risk range of 1×10^{-6} to 1×10^{-4} . The swimming pool and garden produce exposure scenarios indicate there is a potential for noncarcinogenic effects, but no adverse effects are anticipated for the car washing scenario. It should be noted that there is uncertainty associated with risk estimates that may result in overestimating risks that were presented in the supplemental risk assessment. TCE was identified as the primary contributor to overall risk. The established MCLs for groundwater contaminants was used as the cleanup standard. The MCL for TCE is 5 µg/l. The wells of the residences that connected to the city water were appropriately abandoned during the U.S. EPA Removal Action completed in 1996.

Even though the risk assessments determined there are no contaminants of concern above an unacceptable risk level in the site property soils, the potential for contaminants to migrate from the soil to the groundwater was evaluated based on PRGs that were determined during the RI. Establishing PRGs is necessary if cleanup standards do not exist for chemicals of concern. The SSLs were used as PRGs for the Galen Myers site property soils. SSLs were developed to evaluate the soil-to-groundwater migration pathway. The SSLs indicate a concentration of a chemical in soil that would not result in exceedances of the acceptable concentration of the chemical in groundwater. Since inorganic chemicals are present in soils at naturally occurring levels, background concentrations were taken into consideration. Concentrations above the SSLs suggested a further evaluation be conducted during the RD to determine if potential risks indicate there is a need to conduct another response action. The organics that exceeded the SSLs were TCE, methylene chloride, and 1,2-dichloropropane. The inorganics that exceeded the SSLs were arsenic, antimony, iron, and chromium. Arsenic and iron were also detected in upgradient soils. The RI estimated 1,100 cubic yards of site property soil exceeded PRGs.

Contaminants of Concern

Due to the presence of residential groundwater users within the current and projected site plume migrational path, the goal of the remedy is to reach U.S. EPA drinking water MCLs for

contaminants of concern at the site. The following groundwater cleanup goals were established in the ROD:

Trichloroethene - 5 µg/l

Breakdown products of trichloroethene which may occur in the future:

1,1-dichloroethene - 7 µg/l
cis-1,2-dichloroethene - 70 µg/l
trans-1,2-dichloroethene - 100 µg/l
1,1,2-trichloroethene - 5 µg/l
1,2-dichloroethane - 5 µg/l
1,2-dichloroethene - 70 µg/l
vinyl chloride - 2 µg/l

The following soil cleanup goal was established in the ROD and is based upon the potential for contaminants to leach out from the soil:

Trichloroethene - 0.11 mg/kg

IV. Remedial Actions

Remedy Selection

The ROD identified the following as general remedial action goals for the Galen Myers site:

- Protection of human health from exposure to TCE through groundwater,
- Compliance with ARARs, and
- Eliminate site property soil source areas that threaten contamination of groundwater.

The U.S. EPA's removal action provided an alternate water supply to the affected or potentially affected residents and eliminated the imminent threat to human health. The key provisions of the 1995 ROD are:

- Excavation of site property soils exceeding 0.11 milligram per kilogram (mg/kg) TCE and disposal at a permitted facility (revised in 1998 Explanation of Significant Difference);
- Completion of the U.S. EPA removal action providing an alternate water supply from Mishawaka Utilities to the affected residential area (completed June 1996);
- Continued natural attenuation of ground water (ongoing);
- Installation of fifteen (15) additional ground water monitoring wells (completed May 2002);
- Long-term monitoring of the groundwater and the St. Joseph River (ongoing); and

- Implementation of institutional controls to prohibit installation of wells on the site property and in the residential area affected by the TCE-contaminated ground water (completed January 1999).

The groundwater cleanup goals will be reached by natural attenuation. Natural attenuation relies on natural subsurface processes such as leaching, dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials to reduce contaminant concentrations. Based upon information gathered during the RI, it is estimated it will take up to 160 years to achieve the TCE cleanup goal in the groundwater.

Remedy Implementation

Remedial Design (RD) activities were initiated by IDEM in April 1997, and completed in September 1998. Baker Environmental, Inc., was retained by IDEM to update the Remedial Design Work Plans and to conduct a Remedial Design Field Investigation (RDFI). The RDFI activities included site property soil sampling to determine horizontal extent of TCE contamination and groundwater screening to determine long-term monitoring well locations. Data obtained from the RDFI was used to determine appropriate monitoring well locations to evaluate the plume for natural attenuation during the Remedial Action (RA) phase of the project. The RDFI field activities included one round of GeoProbeTM soil and groundwater sampling, a second GeoProbeTM groundwater sampling event, installation of three new groundwater monitoring wells, and surveying monitoring well and IDEM soil confirmation locations for horizontal and vertical control. The data is included in the September 25, 1998, "Remedial Design Field Investigation Report for the Former Galen Myers Property," which was prepared for IDEM by Baker Environmental, Inc.

On July 21, 1997, Mr. Rob Emmans signed a "Consent for Access to Property and Environmental Response" that granted U.S. EPA and IDEM and their agents and employees access to enter his property located at 11303 Edison Road. This access enables the agencies to perform RD/RA and additional response actions deemed necessary for the Galen Myers Superfund site. In addition, Mr. Emmans agreed to restrict the use of the property by filing deed restrictions identified in the attached Exhibit 1 (see Appendix B).

In January 1998, sixteen GeoProbeTM soil screening samples were collected at fifteen site property locations to delineate the horizontal extent of TCE contamination above the soil cleanup goal of 0.11 mg/kg. IDEM also collected confirmation soil samples from the soil screening location SS-1 at approximate depths of four and eight feet below ground surface. Samples were analyzed for VOCs. TCE was detected in only two of the soil samples: a) 0.010 mg/kg in SS-15A (0 to 2 foot depth), and b) 0.105 mg/kg in SS-1 (4.5 to 5 foot depth).

From January 13 to 16, 1998, groundwater from 37 GeoProbeTM locations was analyzed for VOCs to further define vertical and horizontal extent of the TCE groundwater contamination (results ranged from nondetect to 82.6 µg/l TCE). An additional round of GeoProbeTM groundwater screening was conducted at 12 locations from March 17 to 24, 1998 (results ranged

from nondetect to 388 µg/l TCE). Samples were collected at shallow, medium and deep intervals (approximately 30, 50 and 80 feet below surface) along six transects.

On March 25, 1998, three previously installed monitoring wells (MW-2, MW-3, and MW-7) damaged from freeze/thaw events were repaired. In July 1998, monitoring wells MW-22, MW-23, and MW-24 were installed. To confirm previously reported groundwater flow patterns, groundwater elevations were collected from 25 monitoring wells in July and August 1998. The additional 12 monitoring wells were installed later in two phases during the Remedial Action.

The 1998 groundwater elevations and screening data indicated the TCE plume is quite narrow, approximately 200 feet wide and 5,700 feet long. The TCE appears to be spreading vertically as it flows to the south, and continues to flow to the south-southwest direction toward the St. Joseph River.

Based on soil sampling results collected during 1998 RDFI activities, IDEM and U.S. EPA concluded that further site property soil excavation was not required since the levels of contamination were below the soil cleanup goal 0.11 mg/kg TCE. An Explanation of Significant Difference (ESD) was signed on September 30, 1998, describing this modification to the ROD. In September 1998, a Preliminary Closeout Report and RD Field Investigation Report were prepared.

According to the ROD, a contaminant transport model was to be completed to determine the concentrations of the contaminants in the groundwater when it discharges into the St. Joseph River. To assist with this task and aid in selecting new monitoring well locations, in June 1997 RI/FS data was used to conduct a groundwater flow model and pathline analysis. Using values estimated from RI data and U.S. Geological Survey data regarding the discharge of the St. Joseph River, a conservative quantitative estimate of the impact of the plume discharging into the river determined: a) during drought conditions, a maximum increase of 0.2 µg/l TCE (marginally detectable), b) during average daily river discharge, the impact to the river is 2.7×10^{-2} µg/l TCE (not detectable), and c) during flood conditions, the additional amount of TCE to the river is 4×10^{-3} µg/l TCE (not detectable). The State of Indiana Surface Water Quality Criteria for protection of human health is 29 µg/l TCE for a drinking water source and 370 µg/l TCE for a non-drinking water source (327 Indiana Administrative Code (IAC) 2-1.5 Table 8-3).

U.S. EPA provided Mishawaka Utilities water to approximately 180 residences that responded to the offer for city water hookup by June 1996. The St. Joseph County Health Department Well Drilling and Water Supply System Ordinance became effective on January 1, 1999. The ordinance gives SJCHD the ability to prevent wells from being installed in the TCE-affected or potentially affected areas. Prior to construction of a water supply well, breaking the seal on an existing water supply well, or uncovering a buried upper terminal of a water supply well, the owner must apply for and obtain a written Water Supply Well Permit that is signed by the county's Health Officer. No water supply well shall be used until it is inspected and approved by the county's Health Officer. The ordinance does not allow a water supply well to be drilled in areas of known or suspected soil and/or groundwater contamination unless a special permit is obtained from the county's Health Officer.

Monitoring wells for the Galen Myers site were installed in various phases: a) twenty-one wells were installed during the RI (twelve wells in 1993 and nine wells in 1994), b) three wells were installed during the RDFI (1998), and c) twelve wells were installed during the RA (seven wells in November 2001 and five in May 2002).

System Operations/Operation and Maintenance

Various administrative difficulties delayed the implementation of the groundwater monitoring activities during 2003 and 2004. In 2003, USEPA and IDEM were in disagreement regarding the Operational and Functional (O&F) date of the remedy, and U.S. EPA's assertion that the Site was in Operation and Maintenance (O&M), rather than Long-Term Response Action (LTRA), phase. U.S. EPA is not responsible for O&M costs. These differences were resolved in 2004, when USEPA agreed that the Site was in LTRA, approved IDEM's proposed O&F date, and determined that the balance of funds in the Cooperative Agreement (CA) Management Assistance grant could be utilized for groundwater monitoring activities. IDEM's previous contract for RA activities expired on December 31, 2003. After it was determined that IDEM could not extend the previous contract term, IDEM sent out Request for Quotation for the LTRA work activities on October 5, 2004. IDEM prepared a revised CA application and submitted it to the U.S. EPA on April 1, 2005. U.S. EPA approved IDEM's CA application on July 20, 2005, and IDEM staff have begun contract negotiations for LTRA activities at the site. Once a contractor is hired, the sampling frequency, locations, and target compounds will be determined during work plan development. According to the ROD, the total monitoring well network will be monitored once per year for VOCs, SVOCs and inorganics; and certain wells located at the southern edge of the plume will be monitored on a semi-annual basis for VOCs to monitor the migration of TCE contaminated ground water and to identify breakdown products of TCE. This monitoring will be conducted until the levels in the ground water reach the cleanup goals. Sampling frequency, locations, and parameters will be re-evaluated during LTRA sampling activities.

To assist IDEM in assessing the current conditions at the Galen Myers site, the U.S. EPA conducted a groundwater monitoring event during the week of August 29, 2005. The U.S. EPA will provide IDEM staff the analytical results after they undergo a quality assurance quality control review.

V. Progress Since the Last Five-Year Review

The first Five-Year Review of the site was completed on September 28, 2000. The following is a summary of the first review's conclusions: a) RA activities continue; b) no hazardous substances or pollutants remain at the site; c) remedy selected for this site remains protective of human health and the environment; d) TCE contaminated groundwater continues to move south towards the St. Joseph River; and e) monitoring of the migration of the TCE plume and quality of the groundwater should continue.

Since the first review, RA field activities included a) installation in two phases of the remaining twelve monitoring wells, b) three groundwater monitoring events, c) one round of residential well sampling, and d) sampling Penter's Pond that was constructed downgradient from the site.

Since the implementation of the ROD, some monitoring wells have been damaged or buried. Monitoring wells MW-10 and MW-11 were damaged by the homeowner, MW-20 and MW-21 were buried during the construction of Penter's Pond, and MW-18 was damaged by nearby logging operations. Based upon the locations of these wells relative to the TCE plume and other monitoring wells, it was determined that these wells did not need to be replaced.

Eight monitoring wells (MW-25 to MW-31 and MW-33) were installed in November 2001. Four monitoring wells (MW-32, MW-34 to MW-36) were installed in May 2002. The locations for all remaining wells are shown on Figure 4A and Figure 4B. Initial (December 2001), semi-annual (June 2002), and annual (December 2002) groundwater sampling events were conducted following the installation of the new wells. During initial and annual sampling events, groundwater collected from all existing monitoring wells was analyzed for VOCs, SVOCs, and metals. During the semi-annual monitoring event, groundwater collected from fifteen monitoring wells (MW-22 to MW-36) at the leading edge of the plume was analyzed for VOCs. Groundwater elevations are provided in Table 2; analytical results are provided in Table 3; and groundwater contour elevations and the TCE plume limits are provided in Figure 5A and Figure 5B. As anticipated, the overall groundwater flow is generally south to southwest from the Galen Myers site towards the St. Joseph River. Sediment samples from Penter's Pond were collected in June 2002 (Table 4), and surface water samples were collected in June 2002, November 2002, March 2003, and June 2003 (Table 5).

VI. Five-Year Review Process

Administrative Components

The Galen Myers Five-Year Review was prepared by Resa Ramsey, IDEM state project manager for the site. Mr. Patrick Hamblin, U.S. EPA Remedial Project Manager, also assisted in the review. The five-year review consisted of a review of relevant site documents and monitoring data, a site inspection, and discussions with Mr. Hamblin and Mr. Marc Nelson (SJCHD).

Community Notification and Involvement

On February 13, 2005, a public announcement ran in the local Indiana newspaper, the South Bend Tribune, announcing that IDEM was performing this review (see Appendix C). The public was invited to comment either in writing or verbally to IDEM on the Galen Myers site.

Since the alternate water line was provided by the U.S. EPA, there has been very low community interest in this site. During the review period, the SJCHD provided written comments on June 8, 2005, and the SPM had phone conversations with Mr. Marc Nelson (SJCHD) and three citizens. IDEM provided a written response to the SJCHD comment letter on July 27, 2005. One citizen called inquiring about the current status of the site, because he is considering

constructing a house south of 55163 Birch Road, which is near monitoring wells MW-15 and MW-16. To date TCE has not been detected in MW-16 (83 feet depth), and the concentration of TCE detected in MW-15 (25 foot depth) is decreasing over time (4,800 µg/l in 1994 to 1,200 µg/l in 2002). He already knew he would be required to connect to city water. The SPM informed him that it is not known if soil vapor is impacting the area. To be cautious, the citizen may want to include a ventilation system (i.e., a radon mitigation system) in the new house. The other two citizens were asking why the Mishawaka Water Supply could not be extended into their neighborhood. They both live on Caldwell Drive, which is located approximately two blocks west of the U.S. EPA Removal Action that provided an alternative drinking water supply for TCE-affected or potentially affected residents. The SPM informed them that at this time the monitoring data indicates the Galen Myers groundwater plume is located to the east of their homes. The SPM also contacted the SJCHD regarding these inquiries.

Document Review

Documents reviewed for this five-year review included the RI Report, FS Report, ROD, RDFI Report, analytical results of monitoring events, as well as relevant site correspondence. A list of documents reviewed can be found in Appendix D.

During this five-year review process, IDEM staff reviewed all investigation reports and decision documents for the Galen Myers site. The ROD was reviewed to ensure that all requirements have been implemented and met during remediation activities. The RDFI and Interim Remedial Action Completion reports were reviewed for actions implemented at the Site. The Interim Remedial Action Completion Report analytical results were reviewed to evaluate site conditions over the past five years.

Data Review

Historical data for the site was reviewed in addition to the Interim Remedial Action Completion Report analytical results collected during the RA phase of the project. A review of the data indicates that contaminants continue to exceed the ROD groundwater cleanup levels. TCE was detected in 6 of 31 monitoring wells that were sampled in December 2002. In most cases, TCE concentration remains stable or is decreasing in the site property wells (MW06, MW-07, MW-08, and MW-09). The TCE concentration has decreased significantly in MW-15, which is located downgradient from the site property. The concentration of TCE is decreasing in monitoring well MW-03, which is located downgradient from MW-15. The TCE concentration is increasing slightly in monitoring wells MW-29 and MW-31, which are located at the border of the plume.

Trichloroethene (TCE) - MCL 5 µg/l					
Monitoring Well	May 1994	October 1994	December 2001	June 2002	December 2002
MW-03	190 µg/l	73 µg/l	67 µg/l	not sampled	51 µg/l
MW-06	nondetect	nondetect	nondetect	not sampled	nondetect
MW-07	nondetect	nondetect	nondetect	not sampled	1.6 µg/l
MW-08	nondetect	nondetect	nondetect	not sampled	nondetect
MW-09	1,000 µg/l	610 D µg/l	28 µg/l	not sampled	160 µg/l
MW-15	4,800 µg/l	4,300 µg/l	1,900 µg/l	not sampled	1,200 µg/l
MW-29	Installed 11/2001		28 µg/l	32 µg/l	40 µg/l
MW-31	Installed 11/2001		32 µg/l	38 µg/l	42 µg/l

Below is a summary of some TCE breakdown contaminants that are being detected:

Cis-1,2-Dichloroethene - MCL 70 µg/l			
Monitoring Well	December 2001	June 2002	December 2002
MW-9	nondetect	not sampled	2.4 µg/l
MW-15	13 µg/l	not sampled	19 µg/l
MW-31	nondetect	4 µg/l	3.3 µg/l
MW-33	not sampled	1.1 µg/l	1.6 µg/l

1,1,1-Trichloroethane - MCL 200 µg/l			
Monitoring Well	December 2001	June 2002	December 2002
MW-9	nondetect	not sampled	9.4 µg/l
MW-15	11 µg/l	not sampled	8.3 µg/l
MW-31	nondetect	1.3 µg/l	nondetect

Vinyl Chloride - MCL 2 µg/l			
Monitoring Well	December 2001	June 2002	December 2002
MW-15	nondetect	not sampled	2 µg/l
MW-31	nondetect	1.4 µg/l	nondetect
MW-33	not sampled	1.2 µg/l	nondetect

During the 2001 and 2002 groundwater monitoring events, other contaminants detected above drinking water MCLs included bromomethane, toluene, naphthalene, arsenic, beryllium, chromium, and lead. These contaminants are not likely associated with the Galen Myers site and were not identified as chemicals of concern, appear sporadically (bromomethane, toluene, naphthalene, beryllium, chromium, and lead), or are naturally occurring (arsenic).

During the installation of the new monitoring wells, soil samples were collected for geotechnical analysis. Soil from monitoring wells MW-33, MW-34, and MW-35 was analyzed for lithology, grain size distribution, percent moisture, dry density, specific gravity, and porosity (see Table 6). Soil from eight monitoring wells (MW-25 to MW-31, and MW-33) was analyzed for total organic carbon analysis (see Table 7). This data was used to evaluate the potential rate of groundwater contaminant to vapor exchange and migration in soil above the plume.

The U.S. EPA and IDEM offered city water connections to residences that were contaminated or potentially at risk for future contamination. By declining the opportunity to connect to the municipal water during the U.S. EPA Removal Action completed in 1996, twenty-three residents assumed responsibility for the future safety of their water supply well. On January 16, 2002, IDEM sampled these twenty-three residential wells. The results are provided in Table 8. Twenty-one of the residential wells contained no detectable levels of TCE, and two residential wells showed contamination greater than the MCL of 5 µg/l TCE: a) 55660 Richwood Court (250 µg/l TCE), and b) 55428 Barksdale Court (61 µg/l TCE). On February 28, 2002, IDEM informed all the residents of their well sample results. There are no plans by IDEM or the U.S. EPA for further sampling or remedial measures associated with the residences that previously declined connection to the U.S. EPA alternate water supply. IDEM recommends that SJCHD confirm that the two above mentioned property owners are using and maintaining a filtration system or else proceed accordingly under SCJHD Ordinance 24.20.150 or 24.22.05 (G).

During the spring of 1997, IDEM staff noticed a residential landowner was excavating a private 1 3/4 acre pond (known as Penter's Pond) within the groundwater plume pathway just south of the Galen Myers site. To address potential human ecological exposure pathways, surface water and sediment samples were collected. Penter's Pond sediment sample results are provided in Table 4 and surface water samples are in Table 5. Up to 250 µg/kg acetone was detected in the sediment sample results collected from five locations (0 to 1 foot depth) on June 6, 2002. Acetone is a common lab artifact and there have not been any prior acetone detections at the Galen Myers site. The levels of acetone detected are fairly low when compared to the IDEM Risk Integrated System of Closure default numbers (3,800 µg/kg for residential soil level, 950 µg/kg for groundwater). Surface water was collected from the top, middle, and bottom of the pond's water column quarterly at five locations in June 2002, November 2002, March 2003, and June 2003. Pond surface water samples contained cis-1,2-dichloroethene (from 1.5 to 36 µg/l), TCE (from <1 to 16 µg/l), and vinyl chloride (from <1 to 20 µg/l). The data varied seasonally with highest individual detections in late spring and the highest average levels in late winter when the pond was covered by ice. An overall chlorinated trend analysis was not possible due to the limited number of samples and significant seasonal variation. However, the analytical results were compared to the appropriate U.S. EPA surface water criteria documented in the National Recommended Water Quality Criteria-Correction (EPA 822-Z-99-001, April 1999) and MCLs. The acceptable risk levels were determined to be 81 µg/l for TCE, 525 µg/l for vinyl chloride, and 70 µg/l for cis-1,2-dichloroethene. IDEM conducted a site-specific risk assessment for the surface water and sediment and determined that the detected constituents were below risk levels for both human and ecological receptors. IDEM staff recommend collecting additional surface water samples from Penter's Pond to confirm that Penter's Pond does not represent an exposure pathway of concern.

As discussed in Section IV, the St. Joseph County Health Department Well Drilling and Water Supply System Ordinance became effective on January 1, 1999. The ordinance has been revised and becomes effective as amended on August 1, 2005. A copy of the new ordinance is provided in Appendix A. The ordinance gives SJCHD the ability to prevent wells from being installed in the TCE-affected or potentially affected areas.

Site Inspection

IDEM and U.S. EPA conducted a site inspection on June 8, 2005, to document any significant changes in the site conditions. Participants at the site inspection were Ms. Resa Ramsey (IDEM), Mr. Prabhakar Kasarabada (IDEM), and Mr. Patrick Hamblin (U.S. EPA). Vehicles and debris remain scattered throughout the northern portion of the site, which consists of a deciduous forest and heavily vegetated undergrowth. Woodchip piles are located near the northeastern portion of the property. Two empty plastic containers and two 55-gallon drums, brought to the site property to store purge water from previous IDEM RA sampling events, are still on the site property near the access lane for the northern portion of the site. The locks were secure on the monitoring well protective casings. Photographs taken during the site inspection can be found in Appendix E.

Interviews

During the Five-Year Review period, IDEM contacted the SJCHD. Comments provided during phone conversations with Mr. Marc Nelson and a June 8, 2005 letter were considered during preparation of this Second Five-Year Review.

While conducting the site inspection on June 8, 2005, IDEM and EPA staff discussed the Site with some interested citizens. In addition, the SPM attempted to contact residents with monitoring wells on their property and the two residents that did not hook up to the city water that had TCE detected above the MCL in January 2002 samples.

A resident at 55119 Birch Road indicated she has no concerns regarding the remedy and no objection to samples being collected from Penter's Pond. A resident at 55960 Raintree Drive said her husband was aware of the Galen Myers site; confirmed they are using city water; and allowed us to locate MW-36, which was covered up with soil and located near her mailbox. A resident at 56202 Tanglewood inquired about the sampling activities. The SPM explained we were conducting an inspection for the Galen Myers site; confirmed he was on city water; informed him the groundwater plume is heading in his direction (showed him a site groundwater plume figure); and gave him a copy of the June 8, 2005, IDEM letter regarding IDEM conducting the Five-Year Review site inspection and resident interviews (see Appendix F). The resident at 56226 Tanglewood did not indicate he had any concerns with the Site remedy and assisted in locating monitoring well MW-23, which had been covered up with soil and grass.

Residents with monitoring wells in their back yards (55619 Birch Road (MW-01, MW-02, MW-03, and MW-12) and 55943 Birch Road (MW-25, MW-26, MW-29 and MW-30) were not home at the time of the site inspection. However, the SPM left a letter regarding IDEM conducting the Five-Year Review site inspection and resident interviews (see Appendix F). The residents did not contact IDEM with any concerns or questions during the Second Five-Year Review process.

During the June 8, 2005, site inspection, the SPM wanted to contact residents at the two homes that had TCE detected in their residential well above the MCL during the IDEM January 2002 sampling event. A resident at 55428 Barksdale Street verified they declined to hook up to

the city water. She and her husband did not want the city water to be brought to the area. She also indicated their water filter had been recently changed. Copies of the February 28, 2002, IDEM letter regarding their well sample results (collected by IDEM on January 16, 2002) and the IDEM letter regarding IDEM conducting the Five-Year Review site inspection and resident interviews (see Appendix F) were provided to the resident. They did not contact IDEM with any concerns or questions during the Second Five-Year Review process. No one was home at the 55660 Richwood Court residence at the time of the site inspection. However, the SPM left a copy of the letter February 28, 2002, IDEM letter regarding their well sample results (collected by IDEM on January 16, 2002) and the IDEM letter regarding IDEM conducting the Five-Year Review site inspection and resident interviews (see Appendix F). No one from this residence has contacted IDEM with any concerns or questions during the Second Five-Year Review process. On August 30, 2005, the SJCHD provided IDEM staff a summary of events that resulted in 55660 Richwood Court being connected to municipal water. A new well had been installed at 55660 Richwood Court in May 2001, and it was found to be contaminated during the IDEM January 2002 sampling event. SJCHD had issued a well permit without realizing the site was in the TCE plume. The SJCHD recommended they drink bottled water and/or install a carbon filter. On March 26, 2003, an agreement was signed by the property owner and SJCHD whereby the resident would connect to municipal water and abandon the existing well; and SJCHD reimburse the property owner, for expenses of the new well installation and abandonment. The residence was connected to municipal water on June 6, 2004.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Not completely. The general remedial action goals in the ROD are: a) protection of human health from exposure to TCE through ground water, b) compliance with ARARs, and c) eliminate soil source areas on the site property that threaten contamination of ground water. A review of the data and the site inspection indicate that the remedy is functioning as intended by the ROD and ESD, with the exception of semiannual and annual groundwater monitoring not being conducted due to administrative difficulties previously discussed (see System Operations/Operation and Maintenance). A U.S. EPA removal action resulted in the construction of a waterline extension from the Mishawaka Utilities to the affected area. By June 1996, approximately 180 residences were hooked up to city water. Twenty-three residences that declined the opportunity to connect to the municipal water assumed responsibility for the future safety of their water supply wells. The SJCHD Well Drilling and Water Supply Systems Ordinance became effective January 1, 1999. The available data shows no evidence that the plume has expanded to the St. Joseph River or outside of the residential area that was provided an opportunity to hook up to an alternate water supply. However, groundwater monitoring needs to continue to assess the movement and biodegradation of the TCE plume and confirm that ICs cover an adequate area.

Regarding Institutional Controls, the 1999 SJCHD ordinance on Well Drilling and Water Supply Systems was updated and approved in April 2005, and will become effective in August 2005 (see Appendix A). The revised ordinance gives the SJCHD the authority to deny a permit application to install a potable water well where there is a known or potential groundwater contamination

threat to public health and safety (Section 24.20.120, Siting Potable Water Wells). In addition, the Galen Myers Site area has been established as an Administrative Control Area under Section 24.20.150 of the ordinance, enabling the Health Officer to control the installation and use of wells in the area(s) impacted by the Galen Myers plume by such measures as denying an application to install a new well, requiring the abandonment of wells or requiring property owners to connect to public water supplies when there is a threat to human health (see Figure 6). Lastly, the ordinance prohibits the installation of a new or replacement potable water well within a municipality unless the Health Department receives a written notification from the appropriate municipal water system that they have no objection to the installation of the well (Section 24.20.140, Siting of Wells Where Municipal Water is Available).

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The toxicity data and cleanup levels identified at the time of the remedy selection for groundwater are still valid. In the remedy selection process, groundwater exposure was identified as the major exposure pathway. The remedial action selected in the ROD and ESD met all State and Federal ARARs. The remedy is progressing as expected. The removal of drums and contaminated soil from the site property occurred during the U.S. EPA 1985 removal action. It was determined during RDFI that no further soil excavation was required since the soil contamination at the site property was below the goal of 0.11 mg/kg TCE, and an ESD was approved. The groundwater cleanup goals identified in the ROD are still appropriate.

Penter's Pond was constructed after the ROD and ESD were finalized. The pond is in the pathway of the contaminated groundwater plume. Contaminated groundwater discharging into the pond could result in a new potential exposure pathway. IDEM conducted a site-specific risk assessment based upon sediment and surface water sample data. It was determined that the detected constituents were below risk levels for both human and ecological receptors.

After the ROD and ESD were finalized a housing development was constructed west of the Penter's Pond. Municipal water was provided to this housing development. The SJCHD is reviewing plans for the construction of the proposed Jaworski residential subdivision that will border the northern, eastern, and western sections of the site property. The proposed Jaworski Subdivision will be served by municipal water and connected to a municipal sewer. On May 5, 2005, the SJCHD informed the developer of the proposed Jaworski Subdivision about the Galen Myers Superfund site, the groundwater plume, and made several recommendations (i.e., monitoring the drinking water of the two residences located directly west of the Galen Myers site property, monitoring groundwater encountered during the construction of municipal and sewer lines, construction of surface impoundments, etc.). It is unlikely that the construction activities for the proposed housing development will impact the current groundwater flow direction from the Galen Myers site. The potential for soil vapor migration from the Galen Myers site is still under consideration.

To date there is no evidence that soil vapor is an exposure pathway. Field sampling techniques and EPA guidance have changed since the time of remedy selection and implementation. During the installation of the last twelve monitoring wells, soil samples were collected from five locations for geotechnical analysis and evaluation. This data may be useful in modeling the potential rate of groundwater contaminant to vapor exchange and migration rates in the soil above the plume. A limited soil gas assessment and/or primary and, if necessary, secondary screening to assess this potential exposure pathway will be conducted. Tier 1 and Tier 2 Screening is discussed in the U.S. EPA Draft 2002 Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway, which is available at <http://www.epa.gov/correctiveaction/eis/vapor.htm>.

Changes in ARARs and TBCs

A list of the primary ARARs and To Be Considered (TBCs) listed in the ROD as well as additional ARARs and TBCs identified after the ROD's issuance are included in Table 9. There have been no changes in the primary ARARs and TBCs that affect the protectiveness of the remedy.

ARARs are generally "frozen" at the time of the ROD signature. 312 IAC13-8-3, regarding investigation derived waste, was not listed as an ARAR in the ROD or ESD because it was not filed until November 22, 1999. According to 312 IAC 13-8-3(m), "Contaminated drill cuttings, fluids, and surge and wash waters produced in the drilling and development of a monitoring well shall be collected and contained to prevent contamination of the area and to protect persons who might otherwise come in contact with these materials." IDEM staff consider purging a well to be a form of well development. Therefore, water generated during well development and/or purging should be collected and contained if it is known to be contaminated. The ROD estimates it will take approximately 160 years to achieve TCE cleanup goals in the groundwater. IDEM is concerned that if such containment does not take place during multiple sampling events over the course of the implementation of this remedy, new exposure pathways could be created by releasing contaminated groundwater to the ground surface (i.e., direct contact with groundwater and/or potential concentration of contaminants in surface soil).

The following IDEM Nonrule Policy Documents did not exist at the time the ROD and ESD were finalized. IDEM Nonrule Policy Document (WASTE-0052-NPD) provides guidance on the U.S. EPA's Resource Conservation and Recovery Act (RCRA) "contained-in policy" and requires purge water containing a "listed waste" to be handled appropriately and not disposed of on the ground. IDEM Nonrule Policy Document (Waste-0057-NPD) guidance indicates when groundwater turbidity is high, samples being collected for metals analysis may be field-filtered only in conjunction with unfiltered samples to determine if particle size and mobility affect the results.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

Various administrative difficulties have delayed the implementation of the LTRA monitoring activities. IDEM is in the process of negotiating a contract for the LTRA field activities. During

the past five years there were no changes in the physical conditions at the Galen Myers site that would affect the protectiveness of the remedy, and residences in the affected area that were connected to a waterline extension from the Mishawaka Utilities are still being protected. Penter's Pond was constructed after the ROD and ESD were finalized. IDEM collected sediment and surface water samples from Penter's Pond in 2002. It was determined by a site-specific risk assessment that the detected constituents were below risk levels for both human and ecological receptors. Three more quarters of surface water samples from Penter's Pond were collected in 2002 and 2003. Contaminant concentrations in the pond do not appear to have increased to a level of concern. However, periodic monitoring may be warranted to ensure the contaminant levels do not increase.

Technical Assessment Summary

A review of the data and the site inspection indicate that the remedy is functioning as intended by the ROD and ESD, with the exception of semiannual and annual groundwater monitoring not being conducted due to administrative difficulties discussed previously in this report. Monitoring well sampling efforts required in the 1995 ROD should be reinitiated to confirm that ICs are protective. There have been no changes in the physical conditions of the Galen Myers site property that would affect the protectiveness of the remedy. Since Penter's Pond could be a potential exposure pathway, additional sampling should be conducted to confirm it does not represent an exposure pathway of concern.. There are no significant changes to the ARARs or cleanup levels that would affect protectiveness. The potential for soil vapor migration from the Galen Myers site is still under consideration. To date there is no evidence that soil vapor is an exposure pathway. However, it is appropriate to conduct a soil vapor screening and/or assessment to determine if a limited soil vapor investigation should be implemented.

VIII. Issues

As indicated previously, the frequency of groundwater monitoring has been interrupted. LTRA monitoring well sampling needs be initiated to confirm that ICs are protective. Recently, EPA approved a new CA grant application, which allows IDEM staff to initiate contract negotiations for the LTRA activities. Groundwater and limited surface water monitoring will continue after a contract is approved for the LTRA activities. Penter's Pond is a potential exposure pathway. Additional sampling should be conducted to confirm that Penter's Pond does not represent an exposure pathway of concern.

In July 1997, Mr. Rob Emmans signed an access agreement allowing U.S. EPA and IDEM and their agents and employees access to enter his property located at 11303 Edison Road. This access enables the agencies to perform RD/RA and additional response actions deemed necessary for the Galen Myers Superfund site. While deed restrictions were not required in the ROD or ESD, Mr. Emmans agreed to restrict the use of the site property by filing deed restrictions identified in the attached Exhibit 1 (see Appendix B). The restrictions include: preventing any groundwater development at the site property; preventing excavation of the top three to five feet of soil; ensuring utility, builder, developer are aware of the site contamination conditions; accepting responsibility of protecting monitoring wells located on his property. SPM

recommends confirming a deed restriction was recorded on the property and, if necessary, reevaluate its necessity or consider modifications.

The U.S. EPA and IDEM offered city water connections to residences that were contaminated or at risk for future contamination. IDEM and U.S. EPA conducted meetings, issued fact sheets, sent letters and went door-to-door to inform the residents of the contamination and to offer the alternate water supply hookup as a permanent solution. IDEM sampled these twenty-three residential wells on January 16, 2002. The results are provided in Table 8. Twenty-one of the sampled residential wells contained no detectable levels of TCE, and two residential wells showed high levels of TCE contamination.

On February 28, 2002, IDEM mailed residents their sample results. Carbon Copies of the letters were provided to the St. Joseph County Health Department, Indiana State Department of Health, and U.S. EPA. The letters informed the residents that IDEM staff will not be conducting future sampling and monitoring of their wells. In the letter sent to the two residences that showed high levels of TCE contamination (55660 Richwood Court and 55428 Barksdale Court), IDEM:

1) strongly recommended that the residents immediately cease using their well water and seek an alternate supply such as a public water supply; 2) provided information from the Agency for Toxic Substances and Disease Registry on the health effects of TCE; and 3) advised the residents are required under Indiana's Responsible Property Transfer Law (IC 13-25-3) and the Residential Real Estate Sales Disclosure Law (IC 24-4.6-2) to disclose contamination of their water supply well to a prospective buyer. In case 55660 Richwood Court is a rental property, IDEM mailed a letter addressed to the current resident and a second letter was addressed to the property owner. In the letter sent to the twenty-one residences that showed no detectable levels of TCE, residents were advised: 1) their well is located in an area that could potentially become contaminated by the TCE plume migrating from the Galen Myers Dump/Drum Salvage Superfund site; 2) for their own protection, they should connect to a city water supply or have their well water regularly tested by a private lab for TCE; and 3) advised they are required under Indiana's Responsible Property Transfer Law (IC 13-25-3) and the Residential Real Estate Sales Disclosure Law (IC 24-4.6-2) to disclose the February 28, 2002, IDEM letter to prospective purchasers. There are no plans by IDEM or the U.S. EPA for further sampling or remedial measures associated with the residences that previously declined connection to the U.S. EPA alternate water supply. On June 6, 2004, 55660 Richwood Court was connected to municipal water. IDEM recommends that SJCHD confirm that the 55428 Barksdale Court residents are using and maintaining a filtration system or else proceed accordingly under SCJHD Ordinance 24.20.150 or 24.22.05 (G).

To ensure that ICs are in place and effective, IDEM staff will: contact the SJCHD to confirm that no new wells have been installed in the area covered by the SJCHD Well Drilling and Water Supply Systems Ordinance; inquire what occurred if anyone sought permission under the ordinance to install a well, and inquire if there is a system in place for routine follow-up on the twenty-three residences that declined the opportunity to connect to the municipal water during the U.S. EPA Removal Action to confirm they are using and maintaining a water filtration system.

The potential for soil vapor migration from the Galen Myers site is still under consideration. To date there is no evidence that soil vapor is an exposure pathway. However, it is appropriate to conduct a primary and, if necessary, secondary screening to assess this potential exposure pathway to determine if a limited soil vapor gas investigation should be implemented.

IX. Table 10: Recommendations and Follow-Up Actions

Five Year Review Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)
Groundwater Monitoring	Ground water monitoring needs to continue.	IDEM	U.S. EPA	July, 2006*	Current: Yes Future: Yes
Soil Vapor	Conduct a primary and, if necessary, secondary soil vapor screening and/or assessment to assess potential exposure pathway.	IDEM	U.S. EPA	September 2006	Current: Unknown Future: Unknown
Surface Water Monitoring	Conduct limited monitoring of Penter's Pond and St. Joseph River.	IDEM	U.S. EPA	July, 2006*	Current: Yes Future: Yes
Institution Controls	IC Plan needs to be developed.	IDEM	U.S. EPA	April 2006	Current: Yes Future: Yes
Deed Restriction	Determine if a deed restriction was recorded on the site property.	IDEM	U.S. EPA	Will be included in IC Plan Time Table	Current: Yes Future: Yes
Residential Well	Recommend SJCHD confirm that residents of 55428 Barksdale Street have maintained a water treatment systems for their TCE-contaminated well or proceed accordingly under SCJHD Ordinance 24.20.150 or 24.33.05(G).	IDEM	U.S. EPA	Will be included in IC Plan Time Table	Current: Yes Future: Yes
Residential Well	Recommend SJCHD confirms abandonment of residential well(s) at 55660 Richwood Court.	IDEM	U.S. EPA	Will be included in IC Plan Time Table	Current: Yes Future: Yes
Residential Wells	Confirm with SJCHD that no new wells have been installed in the area impacted by the Galen Myers plume since the SJCHD Well Drilling and Water Supply Systems Ordinance became effective in 1999.	IDEM	U.S. EPA	Will be included in IC Plan Time Table	Current: Yes Future: Yes

Five Year Review Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)
Notice to Prospective Purchasers	Determine appropriate and reasonable means of notice, if any.	IDEM	U.S. EPA	Will be included in IC Plan Time Table	Current: Yes Future: Yes

* Date contingent upon State execution of contract and approval of sampling plans, with EPA's concurrence, for LTRA activities.

X. Protectiveness Statement

A protectiveness statement of the remedy cannot be made at this time until further information is obtained. Further information will be obtained when IDEM resumes groundwater and surface water monitoring, conducts soil vapor screening, and confirms Institutional Controls (ICs) are in place and working effectively.

XI. Next Review

The next Five-Year Review should be conducted by September 2010.

Tables

Table 1 - Chronology of Site Events (page 12)

Table 2 - Groundwater Elevations for Initial, Semiannual, and Annual Events

Table 3 - Initial, Semiannual, and Annual Groundwater Sampling Results

Table 4 - Penter's Pond Sediment Sample Results

Table 5 - Penter's Pond Quarterly Surface Water Sample Results

Table 6 - Selected Soil Sample Geotechnical Parameters

Table 7 - Selected Soil Sample Geotechnical Parameters (Total Organic Carbon)

Table 8 - Residential Well Sample Results

Table 9 - Applicable or Relevant and Appropriate Requirements (ARARs) and
To Be Considered (TBC) Identified

Table 10 - Recommendations and Follow-up Actions (page 34)

TABLE 2
Second Five-Year Review Report

<p style="text-align: center;">TABLE 5-4 Galen-Myers Superfund Site Osceola, Indiana Groundwater Elevations for Initial, Semiannual, and Annual Events</p>								
Date Prepared: 12/10/03								
Monitoring Well	Measuring Point Elevation (MSL)	Total Well Depth (ft)	Initial 12/10/01 - 12/14/01		Semiannual 06/18/02 - 06/19/02		Annual 12/9/02 - 12/13/02	
			Depth to Water (ft)	Groundwater Elevation (MSL)	Depth to Water (ft)	Groundwater Elevation (MSL)	Depth to Water (ft)	Groundwater Elevation (MSL)
MW-01	749.49		27.10	722.39	--	--	29.31	720.18
MW-02	749.53	77.62	25.20	724.33	--	--	27.40	722.13
MW-03	749.16	31.23	22.50	726.66	--	--	25.09	724.07
MW-04	757.47	163.6	34.10	723.37	--	--	37.09	720.38
MW-05	757.5	69.6	9.60	747.90	--	--	13.29	744.21
MW-06	757.52	18.22	9.90	747.62	--	--	13.25	744.27
MW-07	760.01	104.59	15.30	744.71	--	--	19.56	740.45
MW-08	760.3	62.92	9.10	751.20	--	--	13.04	747.26
MW-09	760.15	18.48	8.95	751.20	--	--	12.97	747.18
MW-12	749.54	102.7	26.95	722.59	--	--	29.37	720.17
MW-13	747.92	86.7	27.75	720.17	--	--	28.89	719.03
MW-14	747.57	36.4	26.60	720.97	--	--	28.96	718.61
MW-15	749.66	24.65	6.40	743.26	--	--	9.50	740.16
MW-16	749.7	80.46	7.50	742.20	--	--	8.00	741.70
MW-17	741.88	138.44	21.35	720.53	--	--	22.67	719.21
MW-18	741.55	36.54	22.81	718.74	--	--	Well Damaged	
MW-19	745.53	34.44	22.50	723.03	--	--	23.45	722.08
MW-22	747.1	35.65	24.02	723.08	24.79	722.31	25.94	721.16
MW-23	748.99	37.4	31.45	717.54	30.05	718.94	31.19	717.80
MW-24	747.32	39.42	29.15	718.17	27.02	720.30	28.51	718.81
MW-25	745.66	82.91	22.00	723.66	20.81	724.85	23.87	721.79
MW-26	745.57	42.28	23.00	722.57	20.80	724.77	23.76	721.81
MW-27	748.36	35.04	25.75	722.61	24.71	723.65	27.55	720.81
MW-28	748.48	39.21	25.82	722.66	23.14	725.34	27.70	720.78
MW-29	747.65	44.71	23.95	723.70	22.60	725.05	25.88	721.77
MW-30	746.53	42.42	23.40	723.13	21.60	724.93	24.74	721.79
MW-31	750.75	24.89	9.49	741.26	5.68	745.07	9.60	741.15
MW-32	751.55	24.16	--	--	6.60	744.95	10.47	741.08
MW-33	750.74	24.23	--	--	5.59	745.15	9.55	741.19
MW-34	744.82	39.16	--	--	22.55	722.27	24.83	719.99
MW-35	748.9	39.55	--	--	24.35	724.55	27.34	721.56
MW-36	747.53	84.69	--	--	23.15	724.38	26.70	720.83

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-1			MW-2			MW-3			MW-4		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L)													
Trichloroethene	5	<5		<5	<5		<5	67		51	<5		<5
Cis-1,2-Dichloroethene	70	<5		<1	<5		<1	<5		<1	<5		<1
1,1,1-Trichloroethane	200	<5		<1	<5		<1	<5		<1	<5		<1
Bromomethane	10	<10		<10	<10		<10	<10		<10	<10		<10
Vinyl Chloride	2			<1			<1			<1			<1
Acetone	NA			<5			<5			<5			
Methylene Chloride	5			<1			<1			<1			
Toluene	1			<1			<1			<1			<1
Chloroform	NA			<1			<1			<1			<1
Semi-Volatile Organic Analysis (ug/L)													
Naphthalene	8.3												<50
Pyridine	NA												<10
Metals (mg/L)													
Aluminum	NA	<0.3		0.2	<0.3		0.27	<0.3		0.39	<0.3		<0.2
Antimony	0.006												
Arsenic	0.01			0.049			0.041			0.021			<0.01
Barium	2	0.083		0.079	0.075		0.056	0.042		0.063	0.068		0.063
Beryllium	0.004	<0.001			<0.001			<0.001			<0.001		
Cadmium	NA												
Calcium	NA	52		52	54		58	85		73	42		43
Chromium	0.1	<0.003		<0.01	<0.003		<0.01	0.82		1.5	<0.003		<0.01
Cobalt	NA	<0.003		<0.005	<0.003		<0.005	0.0036		0.012	<0.003		
Copper	NA	<0.01		<0.005	<0.01		<0.005	<0.01		0.036	<0.01		<0.005
Iron	NA	1.6		1.3	1		1.3	5.8		13	1.7		1.7
Lead	0.015												
Magnesium	NA	19		16	18		16	23		19	11		10
Manganese	NA	0.11		0.096	0.12		0.11	0.099		0.25	0.11		0.098
Mercury	0.002												
Nickel	NA	<0.01		<0.01	<0.01		<0.01	0.086		0.016	<0.01		<0.01
Potassium	NA	0.86		0.94	0.79		0.9	2.9		2.9	1.4		1.2
Selenium	0.05												
Silver	0.006												
Sodium	NA			5.3			4.4			19			48
Titanium	0.002												
Vanadium	NA												
Zinc	NA												<0.02

NOTES: NA = Not Applicable
mg/L = milligrams per liter
ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
The well was not sampled during the event
Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/18/03													
Constituent	Action Level	MW-5			MW-6			MW-7			MW-8		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L)													
Trichloroethene	5	<5		<5	<5		<5	<5		1.6	<5		<5
Cis-1,2-Dichloroethene	70	<5		<1	<5		<1	<5		<1	<5		<1
1,1,1-Trichloroethane	200	<5		<1	<5		<1	<5		<1	<5		<1
Bromomethane	10	<10			<10			<10			<10		
Vinyl Chloride	2			<1			<1			<1			<1
Acetone	NA												
Methylene Chloride	5												
Toluene	1												
Chloroform	NA			<1			<1			<1			<1
Semi-Volatile Organic Analysis (ug/L)													
Naphthalene	8.3			<50			<50			<50			<50
Pyridine	NA			<10			<10			<10			<10
Metals (mg/L)													
Aluminum	NA	<0.3		0.25	3.1		0.41	<0.3		0.2	1		0.29
Antimony	0.006												
Arsenic	0.01			<0.01			0.053			0.014			<0.01
Barium	2	0.071		0.068	0.19		0.073	0.099		0.094	0.084		0.069
Beryllium	0.004	<0.001			<0.001			<0.001			<0.001		
Cadmium	NA												
Calcium	NA	87		66	60		62	49		46	69		66
Chromium	0.1	<0.003		<0.01	0.052		<0.01	<0.003		<0.01	<0.003		<0.01
Cobalt	NA	<0.003			0.0076			<0.003			<0.003		
Copper	NA	<0.01		<0.005	<0.01		<0.005	<0.01		<0.005	<0.01		<0.005
Iron	NA	1.4		1.4	7.6		0.6	0.7		0.67	2		1.4
Lead	0.015												
Magnesium	NA	25		23	13		14	19		17	26		22
Manganese	NA	0.12		0.11	8		0.69	0.026		0.021	0.19		0.12
Mercury	0.002												
Nickel	NA	<0.01		<0.01	0.12		<0.01	<0.01		<0.01	<0.01		<0.01
Potassium	NA	0.97		1	13		26	1.2		1.2	1.6		1.1
Selenium	0.05												
Silver	0.006												
Sodium	NA			11			5.3			12			12
Titanium	0.002												
Vanadium	NA												
Zinc	NA			<0.02			0.029			<0.02			<0.02

NOTES: NA = Not Applicable
 mg/L = milligrams per liter
 ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
 [] The well was not sampled during the event
 Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-9			MW-12			MW-13			MW-14		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L)													
Trichloroethene	5	28		160	<5		<5	<5		<5	<5		<5
Cis-1,2-Dichloroethene	70	<5		2.4	<5			<5		<1	<5		<1
1,1,1-Trichloroethane	200	<5		9.4	<5			<5		<1	<5		<1
Bromomethane	10	<10			<10			12			<10		
Vinyl Chloride	2			<1									
Acetone	NA						<5						
Methylene Chloride	5						<1			<1			<1
Toluene	1									<1			<1
Chloroform	NA			<1									
Semi-Volatile Organic Analysis (ug/L)													
Naphthalene	8.3			<50									
Pyridine	NA			<10									
Metals (mg/L)													
Aluminum	NA	15		<0.2	1.5		0.23	<0.3		0.28	0.58		0.045
Antimony	0.006												
Arsenic	0.01			<0.01			0.054			<0.01			<0.01
Barium	2	0.093		<0.05	0.11		0.079	0.019		0.019	0.05		0.03
Beryllium	0.004	0.0012			<0.001			<0.001			<0.001		
Cadmium	NA												
Calcium	NA	16		23	65		57	62		74	82		72
Chromium	0.1	0.012		<0.01	<0.003		<0.01	0.03		0.01	0.12		0.017
Cobalt	NA	0.016			<0.003		<0.005	<0.003			<0.003		
Copper	NA	0.03		<0.005	0.02		<0.005	<0.01		<0.005	<0.01		<0.005
Iron	NA	14		1.3	2.9		0.56	0.21		0.091	2.5		0.72
Lead	0.015												
Magnesium	NA	6.7		5	20		15	17		18	24		17
Manganese	NA	1.2		1.1	0.25		0.17	0.011		0.0067	0.068		0.024
Mercury	0.002												
Nickel	NA	0.018		<0.01	<0.01		<0.01	<0.01			0.033		
Potassium	NA	9.8		3.2	1.2		0.88	1.3		1.1	2		1.5
Selenium	0.05									<0.03			<0.03
Silver	0.006												
Sodium	NA			1.7			3.7			22			25
Titanium	0.002												
Vanadium	NA												
Zinc	NA			<0.02						<0.02			<0.02

NOTES: NA = Not Applicable

mg/L = milligrams per liter

ug/L = micrograms per liter

BOLD = Values in bold above USEPA Action Level

The well was not sampled during the event

Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-15			MW-16			MW-17			MW-18		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L.)													
Trichloroethene	5	1900		1200	<5		<5	<5		<5	<5		
Cis-1,2-Dichloroethene	70	13		19	<5		<1			<1			
1,1,1-Trichloroethane	200	11		83	<5		<1			<1			
Bromomethane	10	<10			<10								
Vinyl Chloride	2			2			<1			<1			
Acetone	NA												
Methylene Chloride	5												
Toluene	1												
Chloroform	NA			<1			<1			<1			
Semi-Volatile Organic Analysis (ug/L.)													
Naphthalene	83			<50			<50			<50			
Pyridine	NA			<10			<10			<10			
Metals (mg/L.)													
Aluminum	NA	<0.3		0.21	<0.3		0.23	<0.3		0.32	<0.3		
Antimony	0.006							<0.02			<0.02		
Arsenic	0.01			0.01			0.013	<0.01		0.012	<0.01		
Barium	2	0.032		<0.05	0.064		0.056	0.067		0.068	0.042		
Beryllium	0.004	<0.001			<0.001			<0.001			<0.001		
Cadmium	NA							<0.001			<0.001		
Calcium	NA	58		59	63		64	110		97	90		
Chromium	0.1	<0.003		<0.1	<0.003		<0.01	0.016		<0.01	0.35		
Cobalt	NA	<0.003			<0.003			<0.003			<0.003		
Copper	NA	<0.01		<0.005	<0.01		<0.005	0.017		<0.005	<0.01		
Iron	NA	0.28		<0.1	1.5		1.5	0.13		0.1	1.6		
Lead	0.015							<0.005			<0.005		
Magnesium	NA	15		14	23		21	31		25	28		
Manganese	NA	0.22		0.15	0.11		0.1	0.0044		<0.005	0.031		
Mercury	0.002							<0.0002			<0.0002		
Nickel	NA	0.015		<0.01	<0.01		<0.01	0.01		<0.01	0.02		
Potassium	NA	3.8		2.9	0.7		0.75	3		5.2	<0.5		
Selenium	0.05							<0.005			<0.005		
Silver	0.006							<0.01			<0.01		
Sodium	NA			7.9			5.9	17		21	15		
Titanium	0.002							<0.005			<0.005		
Vanadium	NA							<0.008			<0.008		
Zinc	NA			0.031			<0.02	<0.02		<0.02	<0.02		

NOTES: NA = Not Applicable

mg/L = milligrams per liter

ug/L = micrograms per liter

BOLD = Values in bold above USEPA Action Level

 The well was not sampled during the event

Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-19			MW-22			MW-23			MW-24		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L)													
Trichloroethene	5	<5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cis-1,2-Dichloroethene	70			<1	<1	<1	<1	<1	<1	<1		<1	<1
1,1,1-Trichloroethane	200			<1		<1	<1		<1	<1		<1	<1
Bromomethane	10											<10	
Vinyl Chloride	2					<1			<1	<1		<1	<1
Acetone	NA					<5			<5				
Methylene Chloride	5			<1			<1						
Toluene	1			<1		<1	<1		<1				
Chloroform	NA									<1			<1
Semi-Volatile Organic Analysis (ug/L)													
Naphthalene	8.3									<50			<50
Pyridine	NA									<10			<10
Metals (mg/L)													
Aluminum	NA	4.6		0.77	5.9		1.5	0.46		1.5	7.5		1.6
Antimony	0.006	<0.02			<0.02			<0.02			<0.02		
Arsenic	0.01	0.092		0.014	0.013		0.013	<0.01		0.022	<0.01		0.013
Barium	2	0.037		0.045	0.068		0.03	0.04		<0.05	0.12		0.055
Beryllium	0.004	0.0026			<0.001			<0.001			<0.001		
Cadmium	NA	<0.001			<0.001			<0.001			<0.001		
Calcium	NA	119		80	119		88	95		110	170		130
Chromium	0.1	2.7		0.67	0.0072		0.01	<0.003		0.016	0.015		0.019
Cobalt	NA	0.06			0.0083			<0.003			<0.003		
Copper	NA	0.08		0.019	<0.01		0.0091	<0.01		0.0079	0.015		0.0075
Iron	NA	64		5.9	16		4.2	1		2.9	14		3.1
Lead	0.015	0.025			0.017			<0.005			0.011		
Magnesium	NA	40		20	33		21	27		31	65		38
Manganese	NA	4.2		0.36	0.59		0.17	0.03		0.18	0.27		0.081
Mercury	0.002	<0.0002			<0.0002			<0.0002			<0.0002		
Nickel	NA	0.52			0.015			<0.01		<0.01	0.013		0.011
Potassium	NA	<0.5		0.078	<0.5		1.5	<0.5		1.9	2.3		2.3
Selenium	0.05	<0.005		<0.03	<0.005		<0.03	<0.005			<0.005		
Silver	0.006	<0.01			<0.01			<0.01			<0.01		
Sodium	NA	30		39	28		22	30		43	190		89
Titanium	0.002	<0.005			<0.005			<0.005			<0.005		
Vanadium	NA	0.038			0.02			<0.008			0.018		
Zinc	NA	0.08		0.022	0.06		0.042	<0.02		0.033	0.067		0.034

NOTES: NA = Not Applicable
 mg/L = milligrams per liter
 ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
 The well was not sampled during the event
 Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-25			MW-26			MW-27			MW-28		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L.)													
Trichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cis-1,2-Dichloroethene	70		<1	<1		<1	<1		<1	<1		<1	<1
1,1,1-Trichloroethane	200		<1	<1		<1	<1		<1	<1		<1	<1
Bromomethane	10												
Vinyl Chloride	2		<1	<1		<1	<1		<1	<1		<1	<1
Acetone	NA		<5			<5			<5			<5	
Methylene Chloride	5												
Toluene	1		<1			<1			<1			<1	
Chloroform	NA			<1			<1			<1			1.1
Semi-Volatile Organic Analysis (ug/L.)													
Naphthalene	8.3			<50			33			<50			<50
Pyridine	NA			<10			<10			<10			<10
Metals (mg/L.)													
Aluminum	NA	<0.3		0.24	<0.3		0.32	2.6		0.74	44		1.1
Antimony	0.006	<0.02			<0.02			<0.02			<0.02		
Arsenic	0.01	<0.01		0.012	<0.01		<0.01	<0.01		0.014	0.026		0.051
Barium	2	0.023		<0.05	0.024		<0.05	0.059		<0.05	0.29		<0.05
Beryllium	0.004	<0.001			<0.001			<0.001			0.0056		
Cadmium	NA	<0.001			<0.001			<0.001			<0.001		
Calcium	NA	8.1		59	66		62	110		100	260		81
Chromium	0.1	<0.003		<0.1	<0.003		<0.1	<0.003		<0.01	0.11		<0.01
Cobalt	NA	<0.003			<0.003			<0.003			0.069		
Copper	NA	<0.01		<0.005	<0.01		<0.005	0.013		<0.005	0.15		<0.005
Iron	NA	0.053		<0.1	0.14		0.25	7.2		1.5	90		1.9
Lead	0.015	<0.005			<0.005			<0.005			0.053		
Magnesium	NA	17		16	19		17	36		25	110		21
Manganese	NA	0.29		0.02	0.012		0.0086	0.26		0.038	2.1		0.082
Mercury	0.002	<0.0002			<0.0002			<0.0002			<0.0002		
Nickel	NA	<0.01		<0.01	<0.01		<0.01	<0.01		<0.01	0.11		<0.01
Potassium	NA	<0.5		1.5	<0.5		2.3	0.67		2.3	6.3		1.4
Selenium	0.05	<0.005			<0.005			<0.005			<0.005		
Silver	0.006	<0.01			<0.01			<0.01			<0.01		
Sodium	NA	30		32	23		20	110		96	35		25
Titanium	0.002	<0.005			<0.005			<0.005			<0.005		
Vanadium	NA	<0.008			<0.008			<0.008			0.098		
Zinc	NA	<0.02		<0.02	<0.02		<0.02	0.029		<0.02	0.33		<0.02

NOTES: NA = Not Applicable
 mg/L = milligrams per liter
 ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
 The well was not sampled during the event
 Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-29			MW-30			MW-31			MW-32		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L)													
Trichloroethene	5	28	32	40	<5	<5	<5	32	38	42		<5	<5
Cis-1,2-Dichloroethene	70		<1	<1		<1	<1	<1	4	3.3		<1	<1
1,1,1-Trichloroethane	200		<1	<1		<1	<1	<1	1.3	<1		<1	<1
Bromomethane	10							<10					
Vinyl Chloride	2		<1	<1		<1	<1		1.4			<1	
Acetone	NA		<5			<5			<5			<5	
Methylene Chloride	5									<1			<1
Toluene	1		<1			<1			<1	<1		<1	3
Chloroform	NA			<1			<1						<1
Semi-Volatile Organic Analysis (ug/L)													
Naphthalene	8.3			260			<50						
Pyridine	NA			17			<10						
Metals (mg/L)													
Aluminum	NA	0.74		0.32	<0.3		0.52	2.4		1.4			0.64
Antimony	0.006	<0.02			<0.02								
Arsenic	0.01	<0.01		<0.01	<0.01		0.028			0.025			0.012
Barium	2	0.029		<0.05	0.038		<0.05	0.042		0.041			0.02
Beryllium	0.004	<0.001			<0.001			<0.001					
Cadmium	NA	<0.001			<0.001								
Calcium	NA	73		82	91		110	53		59			59
Chromium	0.1	<0.003		<0.1	<0.003		<0.1	<0.003		0.0055			<0.003
Cobalt	NA	<0.003			<0.003			<0.003					
Copper	NA	<0.01		<0.005	<0.01		<0.005	<0.01		0.012			<0.005
Iron	NA	2.7		0.19	0.23		0.87	6.5		7.2			1.9
Lead	0.015	<0.005			<0.005								
Magnesium	NA	23		22	26		28	16		17			14
Manganese	NA	0.15		0.009	0.027		0.049	0.28		0.18			0.22
Mercury	0.002	<0.0002			<0.0002								
Nickel	NA	<0.01		<0.01	<0.01		1.9	<0.01					
Potassium	NA	<0.5		2	<0.5		<0.1	2.3		2.2			1.8
Selenium	0.05	<0.005			<0.005					0.036			<0.03
Silver	0.006	<0.01			<0.01								
Sodium	NA	37		29	48		44			8.8			12
Titanium	0.002	<0.005			<0.005								
Vanadium	NA	<0.008			<0.008								
Zinc	NA	<0.02		<0.02	<0.02		<0.02			0.035			<0.02

NOTES: NA = Not Applicable
 mg/L = milligrams per liter
 ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
 [] The well was not sampled during the event
 Blank field indicates result was below detection limits

TABLE 3
Second Five-Year Review Report

TABLE 5-3 A Galen-Myers Superfund Site Osceola, Indiana Initial, Semiannual and Annual Groundwater Sampling Results													
Date Prepared: 12/10/03													
Constituent	Action Level	MW-33			MW-34			MW-35			MW-36		
		Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002	Initial December 2001	Semiannual June 2002	Annual December 2002
Volatile Organic Compounds (ug/L.)													
Trichloroethene	5		<5	<5		<5	<5		<5	<5		<5	<5
Cis-1,2-Dichloroethene	70		1.1	1.6		<1	<1		<1	<1		<1	<1
1,1,1-Trichloroethane	200		<1	<1		<1	<1		<1	<1		<1	<1
Bromomethane	10		<10										
Vinyl Chloride	2		1.2			<1			<1	<1		<1	
Acetone	NA		<5			<5			<5			<5	
Methylene Chloride	5			<1			<1						<1
Toluene	1		<1	<1		<1	<1		<1			<1	<1
Chloroform	NA									<1			
Semi-Volatile Organic Analysis (ug/L.)													
Naphthalene	8.3									<50			
Pyridine	NA									<10			
Metals (mg/L.)													
Aluminum	NA			0.74			0.33			0.42			0.42
Antimony	0.006												
Arsenic	0.01			0.022			0.01			0.37			0.01
Barium	2			0.054			0.041			<0.05			0.048
Beryllium	0.004												
Cadmium	NA												
Calcium	NA			66			75			80			81
Chromium	0.1			<0.003			<0.003			<0.01			0.0035
Cobalt	NA												
Copper	NA			0.0067			<0.005			<0.005			<0.005
Iron	NA			4.8			0.098			1.3			0.35
Lead	0.015												
Magnesium	NA			18			20			18			20
Manganese	NA			0.17			0.004			0.04			0.016
Mercury	0.002												
Nickel	NA									<0.01			
Potassium	NA			1.7			1.3			1.4			3.1
Selenium	0.05			<0.03			<0.03						<0.03
Silver	0.006												
Sodium	NA			7			55			38			120
Titanium	0.002												
Vanadium	NA												
Zinc	NA			0.029			<0.02			<0.02			0.035

NOTES: NA = Not Applicable
 mg/L = milligrams per liter
 ug/L = micrograms per liter
BOLD = Values in bold above USEPA Action Level
 [] The well was not sampled during the event
 Blank field indicates result was below detection limits

TABLE 4
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TABLE 5-5 Galen-Myers Superfund Site Osceola, Indiana Penter's Pond Sediment Sample Results							
Date Prepared: 12/10/03							
Constituent	Action Level	Sediment 1 Northeast 6/6/2002	Sediment 2 Northwest 6/6/2002	Sediment 3 Southeast 6/6/2002	Sediment 3 Field Duplicate Southeast 6/6/2002	Sediment 4 Southwest 6/6/2002	Sediment 5 Pond Extension 6/6/2002
Volatile Organic Compounds (ug/kg)							
Acetone	NA	250	180	160	190	220	110 J

NOTES: ug/kg = micrograms per kilograms
J = Estimated Value

TABLE 5
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TABLE 5-6 A Galen-Myers Superfund Site Osceola, Indiana Penter's Pond Quarterly Surface Water Sample Results													
Date Prepared: 12/10/03													
Constituent	Action Level (1)	Location #1 Shallow Northeast Corner of Penter's Pond				Location #1 Medium Northeast Corner of Penter's Pond				Location #1 Deep Northeast Corner of Penter's Pond			
		Round 1 GW1 0' -1' 6/6/2002	Round 2 Number 1 0' - 0.5' 11/27/2002	Round 3 Number 1 0' - 1' 3/21/2003	Round 4 Number 1 0' - 0.5' 6/23/2003	Round 1 GW1 4' - 4.5' 6/6/2002	Round 2 Number 1 3.5' - 4.5' 11/27/2002	Round 3 Number 1 1.5' - 2' 3/21/2003	Round 4 Number 1 2.5' - 3' 6/23/2003	Round 1 GW1 8.5' - 9' 6/6/2002	Round 2 Number 1 8.5' - 8' 11/27/2002	Round 3 Number 1 2.5' 3' 3/21/2003	Round 4 Number 1 4' - 5.5' 6/23/2003
Volatile Organic Compounds (ug/L)													
Cis-1,2-Dichloroethene	70	4	5.4	8.7	4.8	3.9	5.3	8.6	5	24	5	8.9	8.1
Trichloroethene	81	4	5.8	9	5.1	3.9	5.6	8.9	5.5	16	5.2	8.7	6.7
Vinyl chloride	525	<1	3.2	4.6	1.4	<1	3.4	4.6	1.6	13	3	4.6	3
Methylene Chloride	5	<1		<1	<1	<1		<1	<1	<1		<1	<1
Constituent	Action Level (1)	Location #2 Shallow Northwest Corner of Penter's Pond				Location #2 Medium Northwest Corner of Penter's Pond				Location #2 Deep Northwest Corner of Penter's Pond			
		Round 1 GW2 0' -1' 6/6/2002	Round 2 Number 2 0' - 0.5' 11/27/2002	Round 3 Number 2 0' - 1' 3/21/2003	Round 4 Number 2 0' - 0.5' 6/23/2003	Round 1 GW2 4' - 5' 6/6/2002	Round 2 Number 2 2.5' - 3' 11/27/2002	Round 3 Number 2 2.5' - 3' 3/21/2003	Round 4 Number 2 2' - 3' 6/23/2003	Round 1 GW2 8.5' -9' 6/6/2002	Round 2 Number 2 5.5' - 6' 11/27/2002	Round 3 Number 2 3.5' - 4' 3/21/2003	Round 4 Number 2 3' - 4' 6/23/2003
Volatile Organic Compounds (ug/L)													
Cis-1,2-Dichloroethene	70	3.6	4.7	9.4	3.9	3.6	5.3	9.2	4.7	15	5.3	11	5.3
Trichloroethene	81	3.7	5	9.4	3.8	3.9	5.4	9.2	5.6	5.6	5.2	9.9	6.6
Vinyl chloride	525	<1	3	4.9	1.1	<1	3.1	5	1.4	8.4	3	6.8	1.7
Methylene Chloride	5	<1		<1	<1	<1		<1	<1	<1		<1	<1
Constituent	Action Level (1)	Location #3 Shallow Southeast Corner of Penter's Pond				Location #3 Medium Southeast Corner of Penter's Pond				Location #3 Deep Southeast Corner of Penter's Pond			
		Round 1 GW3 0' -1' 6/6/2002	Round 2 Number 3 0' - 0.5' 11/27/2002	Round 3 Number 3 0' - 1' 3/21/2003	Round 4 Number 3 0.5' - 1' 6/23/2003	Round 1 GW3 3.5' - 4' 6/6/2002	Round 2 Number 3 1' - 1.5' 11/27/2002	Round 3 Number 3 2.5' - 3' 3/21/2003	Round 4 Number 3 2.5' - 3' 6/23/2003	Round 1 GW3 7.5' - 8' 6/6/2002	Round 2 Number 3 2.5' - 3' 11/27/2002	Round 3 Number 3 3.5' - 4' 3/21/2003	Round 4 Number 3 4.5' - 5' 6/23/2003
Volatile Organic Compounds (ug/L)													
Cis-1,2-Dichloroethene	70	3.8	4.3	8.8	5	3.9	4	8.9	7	36	4.5	9.4	29
Trichloroethene	81	4	4.5	8.9	5.4	3.9	4.3	9.1	6.4	13	4.3	9.3	2.2
Vinyl chloride	525	<1	2.2	4.9	1.5	<1	2.4	4.8	2.4	20	2.6	4.8	23
Methylene Chloride	5	<1		<1	<1	<1		<1	<1	<1		<1	<1

NOTES: NA = Not Applicable

ug/L = micrograms per liter

Blank field indicates result was below detection limit

(1) USEPA's surface water criteria (National Recommended Water Quality Criteria-Correction EPA 822-Z-99-001, April 1999) were the basis for a surface water cleanup goals of 81 ppb for TCE, 525 ppb for vinyl chloride and the MCL of 70 ppb for cis-1,2,-dichloroethene.

TABLE 5

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TABLE 5-6 A Galen-Myers Superfund Site Osceola, Indiana Penter's Pond Quarterly Surface Water Sample Results													
Date Prepared: 12/10/03													
Constituent	Action Level (1)	Location #4 Shallow Southwest Corner of Penter's Pond				Location #4 Medium Southwest Corner of Penter's Pond				Location #4 Deep Southwest Corner of Penter's Pond			
		Round 1 GW4 0.5' - 1' 6/6/2002	Round 2 Number 4 0' - 0.5' 11/27/2002	Round 3 Number 4 0' - 0.5' 3/21/2003	Round 4 Number 4 0.5' - 1' 6/23/2003	Round 1 GW4 3' - 3.5' 6/6/2002	Round 2 Number 4 3.5' - 4.5' 11/27/2002	Round 3 Number 4 1.5' - 2' 3/21/2003	Round 4 Number 4 2' - 3' 6/23/2003	Round 1 GW4 6.5' - 7' 6/6/2002	Round 2 Number 4 8.5' - 8' 11/27/2002	Round 3 Number 4 2' - 2.5' 3/21/2003	Round 4 Number 4 3.5' - 4' 6/23/2003
Volatile Organic Compounds (ug/L)													
Cis-1,2-Dichloroethene	70	3.5	4.6	8.8	6	3.6	4.4	9.1	7	3.7	4.5	9.2	26
Trichloroethene	81	3.3	5.2	8.8	4.6	3.4	5.2	8.8	4.9	3.8	4.4	8.8	4.9
Vinyl chloride	525	<1	3.2	4.8	2.2	<1	2.7	4.9	2.6	<1	2.4	5.1	9.6
Methylene Chloride	5	<1		<1	<1	<1		<1	<1	<1		<1	<1
Constituent	Action Level (1)	Location #5 Shallow Expansion of Penter's Pond				Location #5 Medium Expansion of Penter's Pond				Location #5 Deep Expansion of Penter's Pond			
		Round 1 GW5 0' - 1' 6/6/2002	Round 2 Number 5 0' - 0.5' 11/27/2002	Round 3 Number 5 0' - 0.5' 3/21/2003	Round 4 Number 5 0.5' - 1' 6/23/2003	Round 1 GW5 3.5' - 4' 6/6/2002	Round 2 Number 5 2.5' - 3' 11/27/2002	Round 3 Number 5 1.5' - 2' 3/21/2003	Round 4 Number 5 2' - 3' 6/23/2003	Round 1 GW5 8' - 8.5' 6/6/2002	Round 2 Number 5 5.5' - 6' 11/27/2002	Round 3 Number 5 2.5' - 3' 3/21/2003	Round 4 Number 5 3' - 4' 6/23/2003
Volatile Organic Compounds (ug/L)													
Cis-1,2-Dichloroethene	70	3.2	1.5	6.6	3	3.2	1.5	6.6	3.2	3.6	2	6.6	4.5
Trichloroethene	81	3.1	1.8	6.7	1.9	3.3	1.7	6.9	2	<1	2.1	6.9	2.3
Vinyl chloride	525	<1	<1	2.9	<1	<1	<1	3	<1	<1	1.3	2.9	1.2
Methylene Chloride	5	<1		<1	<1	<1		<1	<1	<1		<1	<1

NOTES: NA = Not Applicable

ug/L = micrograms per liter

Blank field indicates result was below detection limit

(1) USEPA's surface water criteria (National Recommended Water Quality Criteria-Correction EPA 822-Z-99-001, April 1999) were the basis for a surface water cleanup goals of 81 ppb for TCE, 525 ppb for vinyl chloride and the MCL of 70 ppb for cis-1,2,-dichloroethene.

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TABLE 5-2 A Galen-Myers Superfund Site Osceola, Indiana Selected Soil Sample Geotechnical Parameters			
<i>Date Prepared: 12/10/03</i>			
Parameter	MW-33	MW-34	MW-35
Water Content (%)	8.7	6.1	9.5
Dry Density (pcf)	90.7	86.1	91.4
Specific Gravity	2.676	2.66	2.683
Porosity (%)	45.4	48.1	45.4
Description	Fine - Coarse Sand Little Fine Gravel - Little Silt - Brown (SP-SM)	Fine - Coarse Sand, Little Fine Gravel, Trace Silt - Brown (SP)	Fine - Coarse Sand, Trace Silt, Trace Fine Gravel - Brown (SP)
Estimated Thickness of Capillary Zone (ft)	<0.5	<0.5	<0.5

NOTES: % = Percent
ft = feet
MW = Monitoring Well
pcf = Pound per cubic foot

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TABLE 5-2 B Galen-Myers Superfund Site Osceola, Indiana Selected Soil Sample Geotechnical Parameters						
<i>Date Prepared: 12/10/03</i>						
Parameter	MW-25		MW-26	MW-27		MW-28
	S-9 2' - 16' <i>Composite</i>	S-21 70' - 76' <i>Composite</i>	S-21 70' - 75' <i>Composite</i>	S-13 10' - 26' <i>Composite</i>	S-16 26' - 36' <i>Composite</i>	S-8 27' - 37' <i>Composite</i>
Total Organic Carbon (WT%)	0.80	0.23	0.35	0.28	<0.10	0.32

Parameter	MW-29	MW-30	MW-31		MW-33
	S-9 33' - 41' <i>Composite</i>	S-8 31' - 38' <i>Composite</i>	S-2 0' - 6' <i>Composite</i>	S-2 0' - 6' <i>Composite</i>	S-5 18' - 20' <i>Composite</i>
Total Organic Carbon (WT%)	2	2.2	2.60	4	2.3

NOTES: %WT = Percent by weight
MW = Monitoring Well

TABLE 8
Second Five-Year Review Report

TABLE 5-1 Galen-Myers Superfund Site Osceola, Indiana Residential Well Sample Results						
Date Prepared: 12/10/03						
Constituent	Action Level	10842 Jefferson Road 1/16/2002	55915 Birch Road 1/16/2002	55660 Richwood Court 1/16/2002	11285 McKinley Highway 1/16/2002	55428 Barksdale Street 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	250	<5.0	61
Constituent	Action Level	55150 Barksdale Street 1/16/2002	55130 Barksdale Street 1/16/2002	55130 Barksdale Street Field Duplicate 1/16/2002	55190 Birch Road 1/16/2002	55120 Birch Road 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	<5.0	<5.0	<5.0
Constituent	Action Level	55124 Birch Road 1/16/2002	55290 Birch Road 1/16/2002	55290 Birch Road Field Duplicate 1/16/2002	55290 Birch Road Secondary Duplicate 1/16/2002	56199 Birch Road 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	<5.0	<5.0	<5.0
Constituent	Action Level	11438 East Jefferson Road 1/16/2002	55897 Birch Road 1/16/2002	56044 Waynewood Drive 1/16/2002	56081 Birchway Court 1/16/2002	55810 Wynnewood Drive 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	<5.0	<5.0	<5.0
Constituent	Action Level	55760 Raintree Drive 1/16/2002	11377 Birchtree Drive 1/16/2002	11377 Birchtree Drive Field Duplicate 1/16/2002	11399 Birchtree Drive 1/16/2002	11399 Birchtree Drive Field Duplicate 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	<5.0	<5.0	<5.0
Constituent	Action Level	11399 Birchtree Drive Secondary Duplicate 1/16/2002	55675 Birch Road 1/16/2002	55675 Birch Road Field Duplicate 1/16/2002	55705 Birch Road 1/16/2002	56182 Windmere Drive 1/16/2002
Volatile Organic Compounds (ug/L)						
Trichloroethene	5	<5.0	<5.0	<5.0	<5.0	<5.0

NOTES: ug/L = micrograms per liter

Bold Values indicate that the constituent is above USEPA action levels

Table 9

Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) Identified

The selected remedial action meets all identified applicable or relevant and appropriate Federal and more stringent State requirements. The ARARs are classified as chemical; action- and location- specific.

Chemical-Specific ARARs:

- 40 CFR 141, National Primary Drinking Water Standards: MCLs are applicable and proposed MCLs are to be considered. The MCL for TCE is 5.0 micrograms per liter (µg/l). Non-zero Maximum Contaminant Level Goals (MCLGs) are applicable and non-zero proposed MCLGs are to be considered.
- 40 CFR 143, National Secondary Drinking Water Standards: Secondary MCLs are applicable for the quality of drinking water and relevant and appropriate for groundwater.
- 40 CFR 131, Clean Water Act: Water Quality Criteria are relevant and appropriate since discharge of contaminants in the St. Joseph River could occur.
- 327 IAC 2: State of Indiana Groundwater Quality Standards.
- 327 IAC 8-2: State of Indiana Public Water Supply Drinking Water Standards.

Action-Specific ARARs:

- 40 CFR 50, National Primary and Secondary Ambient Air Quality Standards (NAAQS): During excavation and grading, fugitive dust emission must not exceed NAAQS requirements for particulate matter.
- 40 CFR 261: Resource Conservation and Recovery Act (RCRA) is applicable for definition and identification of hazardous wastes [and] for identifying proper disposal of wastes and may be relevant and appropriate for sampling activity; delegated program in Indiana is implemented at 329 IAC.
- 40 CFR 262: RCRA is applicable for generators of hazardous wastes if such materials are disposed off site. This may be applicable if the soil is determined to be a hazardous waste. Delegated program in Indiana is implemented at 329 IAC 3.1.
- 40 CFR 263: RCRA is applicable for transporters of hazardous wastes, may be applicable if site soils are hazardous waste. Delegated program in Indiana is implemented at 329 IAC 3.1
- 40 CFR 268: RCRA is applicable for soil excavation and treatment residuals if the soil test using the Toxicity Characteristic Leachate Procedure (TCLP) is hazardous under Land disposal Restrictions (LDRs) and if those materials are to be moved or placed outside of an area of contamination and/or are to be disposed off site. Delegated program in Indiana is implemented at 329 IAC 3.1. Solid and Special Waste Management Regulations are applicable is soil tests determine the soils are not a hazardous waste by the TCLP method.

- 40 CFR 122.44(1): National Pollutant Discharge Elimination System (NPDES) Permit Regulations. Administrative requirements for monitoring of discharges to ensure compliance by monitoring mass, volume, and frequency of discharge events are relevant and appropriate for discharge of groundwater to the St. Joseph River. Delegated program in Indiana is implemented at 327 IAC 15.
- 326 IAC 6: State of Indiana Particulate Rules. Fugitive dust emissions and particulate matter emissions are subject to the rules.
- 326 IAC 8: Volatile Organic Compound Rules establishing emission standards for VOCs.
- 326 IAC 14: Emissions Standards for Hazardous Air Pollutants. Site specific operating requirements for emissions of air pollutants.

Location-Specific ARARs

None.

To Be Considered Criteria (TBC)

None.

Figures

Figure 1 - Site Location Map

Figure 2 - Residents Connected to Mishawaka Water Supply Utility

Figure 3 - Areal Extent of TCE Contamination in Groundwater

Figure 4A - Site Plan, Monitoring Well and Surface Water/Sediment Locations

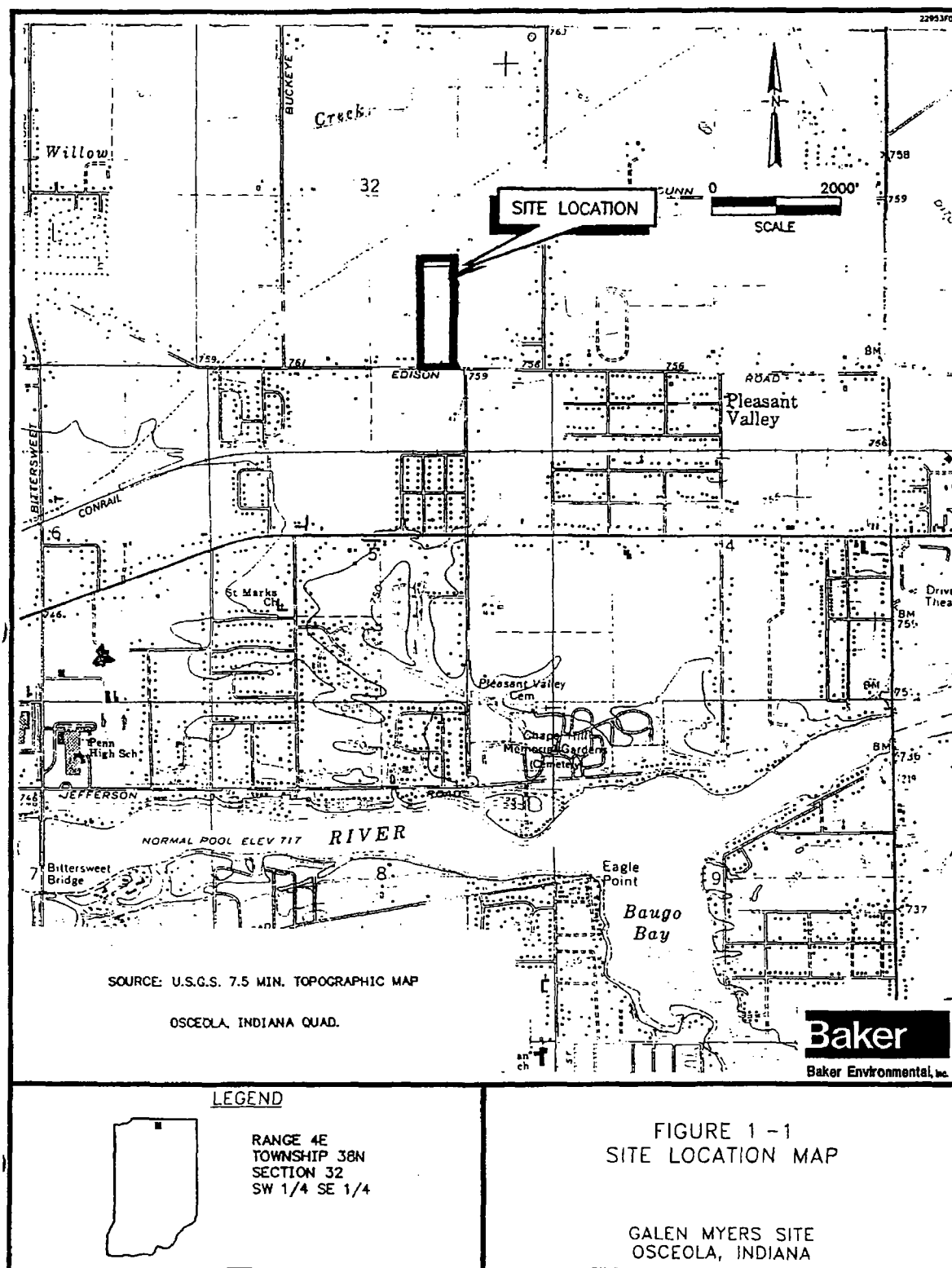
Figure 4B - Site Plan and Monitoring Well Locations

Figure 5A - Annual Groundwater Flow (12/02) and TCE Plume

Figure 5B - Annual Groundwater Flow (12/02) and TCE Plume

Figure 6 - Galen Myers Site Administrative Control Area
St. Joseph County Health Department

FIGURE 1
Second Five-Year Review Report



Source: Interim Remedial Action Completion Report: Baker Environmental, Inc., December 2003

FIGURE 2
Second Five-Year Review Report

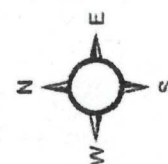
Galen Myers Dump/Drum Salvage Superfund Site Osceola, Indiana



Meters
0 205 410 820
All Data in NAD83 UTM Zone 18N

Legend

- Connected to Mishawaka Water Supply Utility
- Not Connected to Mishawaka Water Supply Utility
- Outside of Response Area
- Conceptual TCE Delineation (1998)
- Roads and Streets



Metadata

Hardcopy source maps of the area of concern were obtained from the US EPA, and scanned into the computer to create a digital image. The scanned image was then imported into an AutoCad 14 drawing. Digital vector features were then created using head-up digitizing techniques, with the scanned image serving as the source data. The plume feature was not created with a head-up digitizing technique, but was digitally drawn onto the map, using a xeroxed copy of a digital map as a reference. This digital AutoCad drawing was then exported as a dxf file and brought into ESRI's ArcGIS software where it was first converted into multiple coverages and then transformed into a real-world coordinate system, using both GPS and aerial photograph locations for control points.

Sources

Source Map: All layers (except plume)
U.S. EPA, Region 5
Emergency Response Branch
Ken Thiesen, On-Scene Coordinator
Source Map Scale: 1"=100'

Source Map: Plume Layer
Xeroxed copy of map by:
Baker Environmental, Inc.
Wester Management, Designers/Consultants
Date: Appears to be 09/15/98
Source Map Scale: Unknown

Map for Internal Use Only
Not for Distribution
Data Error is Confidential
Version 1.0

FIGURE 2
Residents Connected to
Mishawaka Water Supply Utility

FIGURE 3
Second Five-Year Review Report

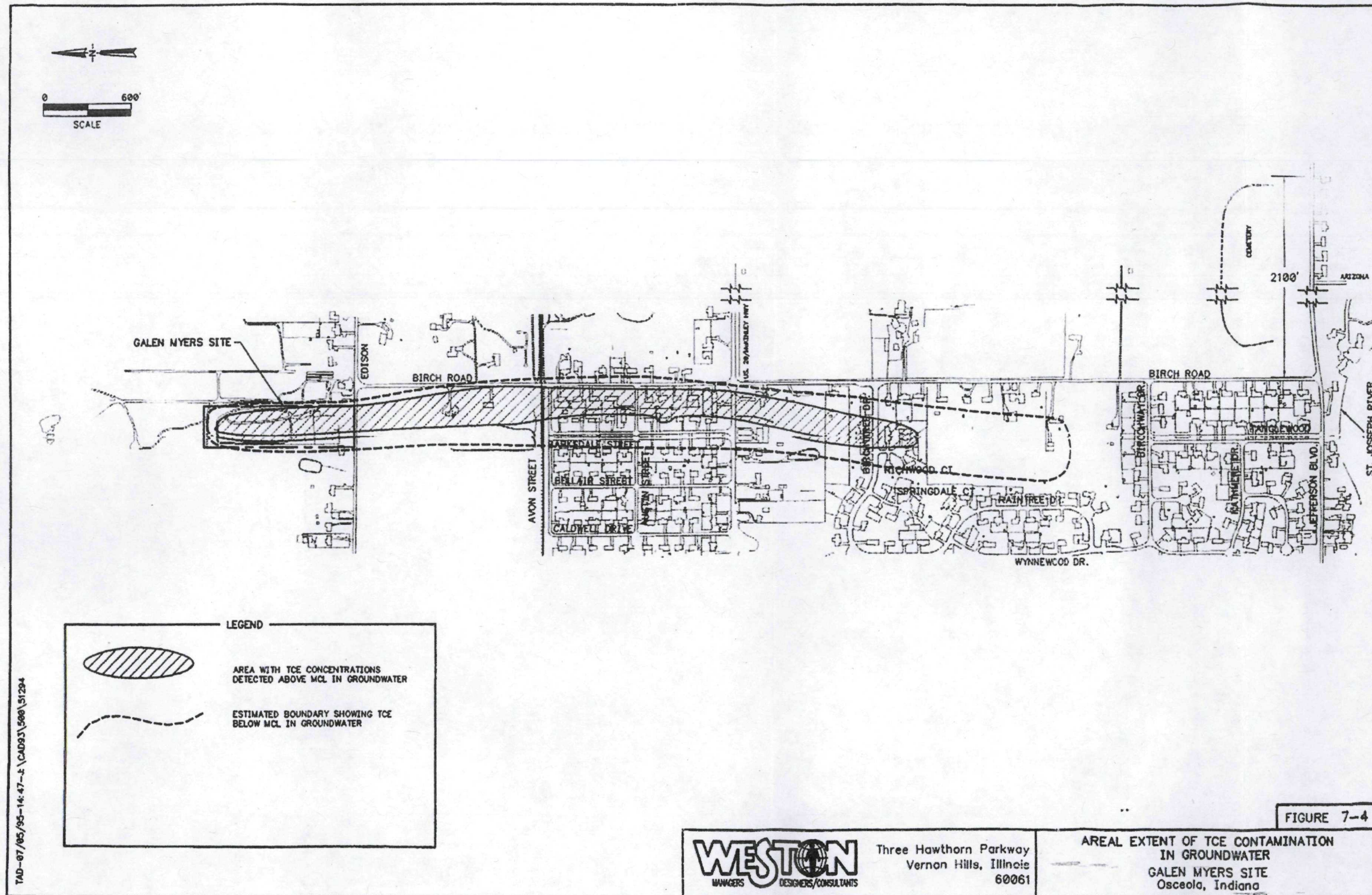
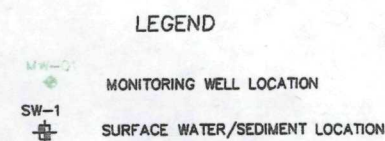


FIGURE 3
Remedial Investigation Extent of
TCE Dcontamination



DRAWN BY: WMP
CHECKED BY: JDP
DATE: OCTOBER 2003
PROJECT NO.: B25225
FILE NAME: B25225IRACR_A

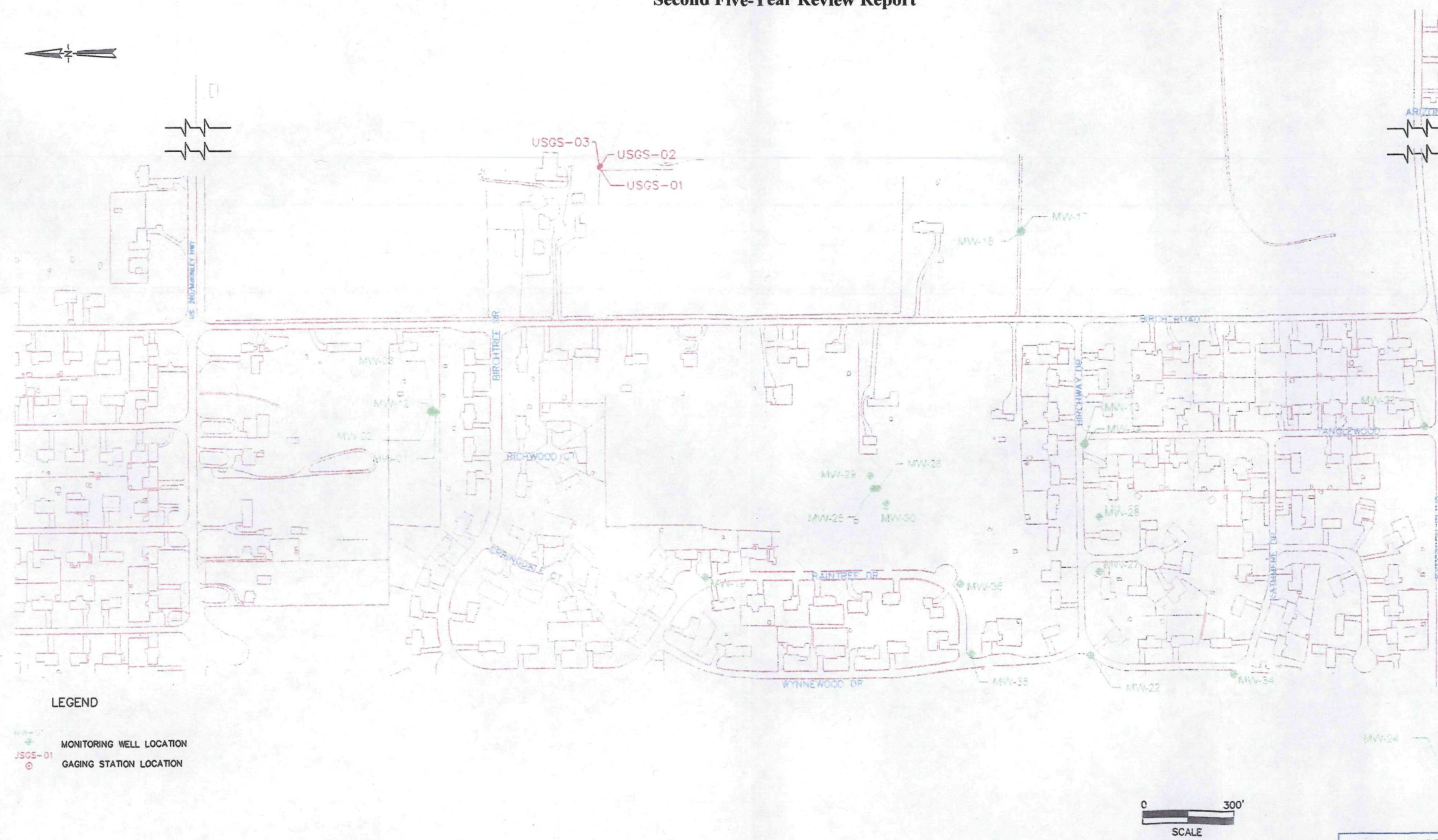


INTERIM REMEDIAL ACTION
COMPLETION REPORT (IRACR)

FIGURE 4A
Site Plan, Monitoring Well and
Surface Water/Sediment

Source: Interim Remedial Action Completion Report: Baker Environmental, Inc., December 2003

FIGURE 4B
Second Five-Year Review Report



LEGEND

MONITORING WELL LOCATION
 GAGING STATION LOCATION

0 300'
 SCALE

FIGURE 1-2B

DRAWN BY: WMP
 CHECKED BY: JDP
 DATE: OCTOBER 2003
 PROJECT NO.: B25225
 FILE NAME: B25225IRACR_B

Baker

BAKER ENVIRONMENTAL, INC.
 CROWN POINT, INDIANA

INTERIM REMEDIAL ACTION
 COMPLETION REPORT (IRACR)

SITE PLAN AND MONITORING WELL LOCATIONS
 GALEN MYERS SITE
 Osceola, Indiana

FIGURE 4B
 Site Plan and Monitoring Well Locations

Source: Interim Remedial Action Completion Report: Baker Environmental, Inc., December 2003

Second Five-Year Review Report

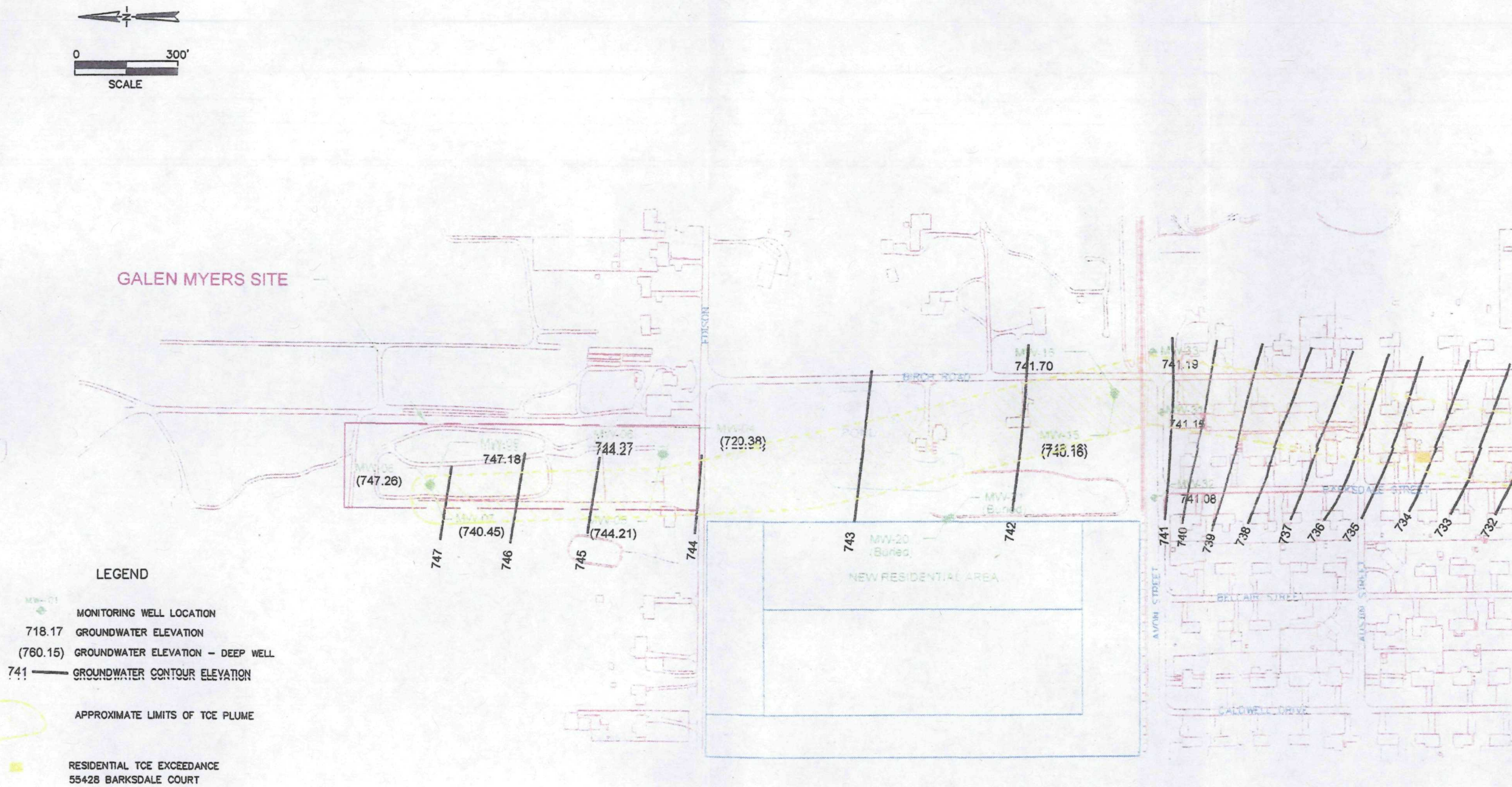


FIGURE 5-1A

DRAWN BY: WMP
CHECKED BY: JDP
DATE: OCTOBER 2003
PROJECT NO.: B25225
FILE NAME: B25225\RACR_A

Baker

BAKER ENVIRONMENTAL, INC.
CROWN POINT, INDIANA

INTERIM REMEDIAL ACTION
COMPLETION REPORT (IRACR)

ANNUAL GROUNDWATER FLOW (12/02) AND TCE PLUME

GALEN MYERS SITE
Osceola, Indiana

FIGURE 5A
Annual Groundwater Flow
(12/02) and TCE Plume

Source: Interim Remedial Action Completion Report: Baker Environmental, Inc., December 2003

FIGURE 5B
Second Five-Year Review Report

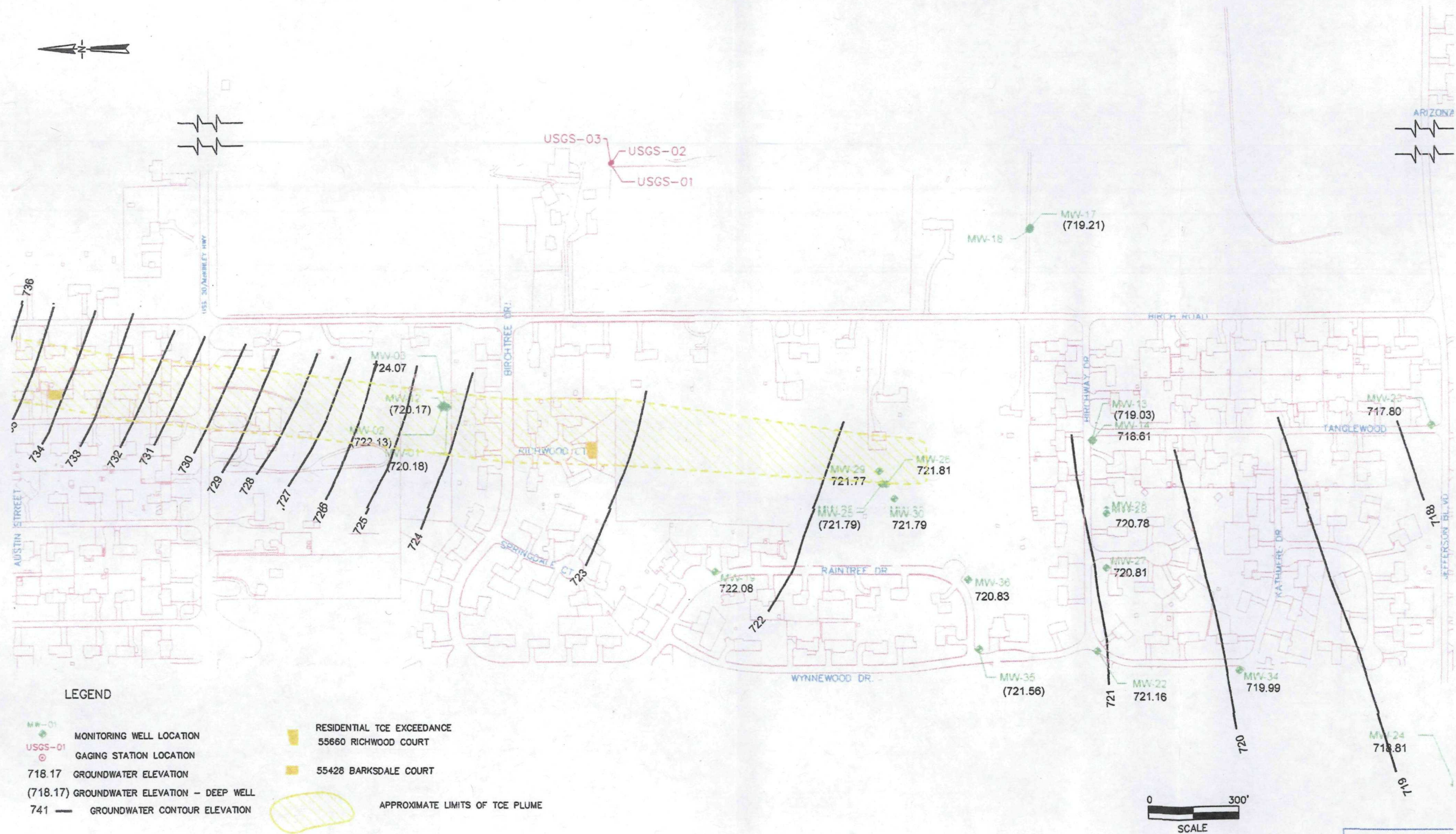


FIGURE 5-1B

DRAWN BY: WMP
CHECKED BY: JDP
DATE: OCTOBER 2003
PROJECT NO.: B25225
FILE NAME: B25225IRACR_B

Baker

BAKER ENVIRONMENTAL, INC.
CROWN POINT, INDIANA

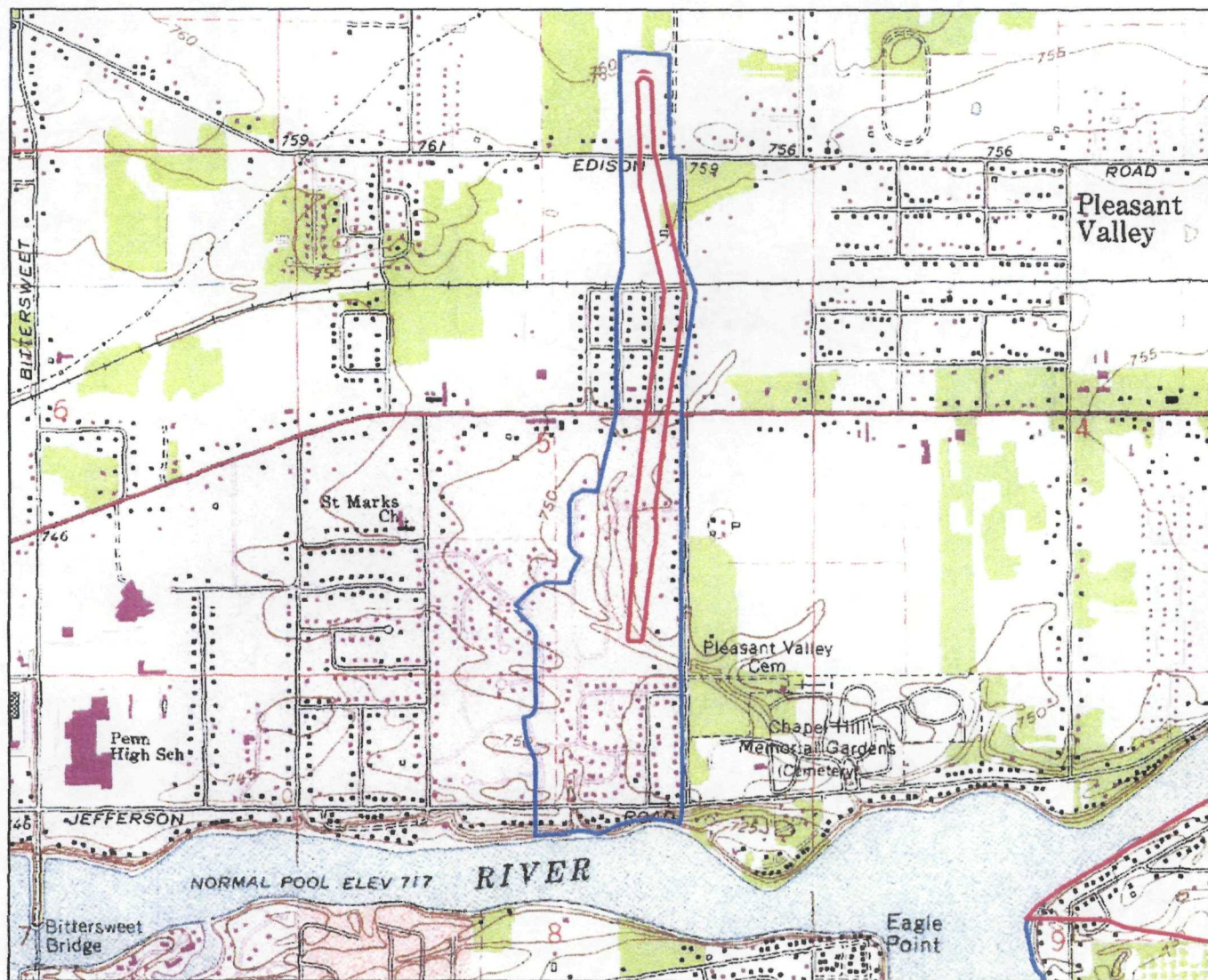
INTERIM REMEDIAL ACTION
COMPLETION REPORT (IRACR)

ANNUAL GROUNDWATER FLOW (12/02) AND TCE PLUME
GALEN MYERS SITE
Osceola, Indiana

FIGURE 5B
Annual Groundwater Flow (12/02)
and TCE Plume

Source: Interim Remedial Action Completion Report: Baker Environmental, Inc., December 2003

FIGURE 6
Second Five-Year Review Report



Prepared By:

St. Joseph County
Health Department
227 W. Jefferson Blvd.
South Bend, IN 46601
Phone: (574) 245-6583



Legend

- Contamination Area
- Admin Control Area

Galen-Myers Site
Administrative Control Area

0 0.15 0.3 0.6 Miles

Appendices

Appendix A - St. Joseph County Health Department Well Drilling and Water Supply Systems Ordinance

Appendix B - Access Agreement with Mr. Rob Emmans

Appendix C - February 13, 2005, South Bend Tribune Public Announcement

Appendix D - List of Documents Reviewed

Appendix E- June 8, 2005, Site Inspection Photographs

Appendix F - June 8, 2005, IDEM letter regarding Five-Year Review site inspection

Appendix A

St. Joseph County Health Department Well Drilling and Water Supply Systems Ordinance

ST. JOSEPH COUNTY, INDIANA

WELL DRILLING

AND

WATER SUPPLY SYSTEMS

ORDINANCE

SEP - 6

Bill No. 22-05

Ordinance No. 38-05

An Ordinance amending Title 24 of the St. Joseph County Code so as to modify thereto Title 24.20, Well Drilling and Water Supply Systems Ordinance.

(Department 055 Health)

Statement of Purpose and Intent


The purpose and intent of this Ordinance is to protect public health, safety, welfare, and property in St. Joseph County by amending Title 24.20 of the St. Joseph County Code, Well Drilling and Water Supply Systems.

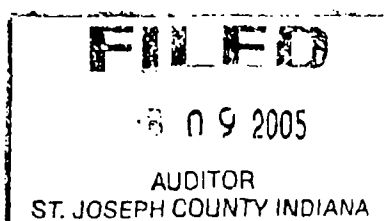
This is an Ordinance pertaining to the installation, use, and abandonment of water wells in St. Joseph County.

NOW THEREFORE IT IS ORDAINED BY THE ST. JOSEPH COUNTY COUNCIL THAT:

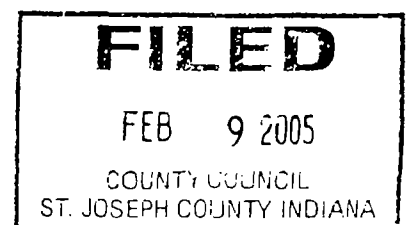
Section 1, Chapter 24.20, Well Drilling and Water Supply System is repealed and revised to read as attached hereto.

Section 2, This ordinance shall be in full force and effect from and after its enactment and approval by the St. Joseph County Council.


MEMBER, ST. JOSEPH COUNTY COUNCIL



1st READING MAR 8 2005
PUBLIC HEARING APR 12 2005
2nd READING APR 12 2005
NOT APPROVED
REFERRED HS/CJ
PASSED APR 12 2005, 9-0



St. Joseph County Health Department
Well drilling and Water Supply System Ordinance
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24.20.010, Short Title The Ordinance codified in this chapter shall be known and amended as the "St. Joseph County Well Drilling Ordinance".

24.20.020, Purpose: The purpose of this Ordinance is to establish requirements for the installation, use, and abandonment of water wells in St. Joseph County to protect public health, safety, welfare, and property.

24.20.030, Conflicting Ordinances

The provisions of this Ordinance shall be deemed as additional requirements to the minimum legal requirements of other governmental entities. In case of conflicting requirements, the most restrictive shall apply.

24.20.040, Incorporation by Reference

All rules and regulations of the Indiana Administrative Code Title 312 Article 13, as amended from time to time are hereby incorporated by reference and said copies are available at the St. Joseph County Health Department.

24.20.050, Definitions

Except as defined below, the terms of 312 IAC 13, as amended from time to time, shall have the same definition whenever used in this Ordinance.

For purposes of this Ordinance, the terms below shall be defined as follows:

- A. **Abandonment:** To terminate operation of a well and to restore the site of the well according to the requirements established in this Ordinance and the State of Indiana.
- B. **Administrative Control Area:** A geographic area established by the Health Officer within or near an area of known or suspected groundwater contamination for which the Health Officer may establish restrictions on the installation and use of water wells to protect public health and safety or the groundwater.
- C. **Aquifer:** A geologic formation, group of formations, or part of a formation that yields economically significant quantities of water to wells.
- D. **Board of Health:** The St. Joseph County Board of Health.
- E. **CFR:** Code of Federal Regulations.
- F. **Casing:** Steel or wrought iron pipe, Type "K" copper, PVC, or other material approved by the Health Department, to exclude unwanted solids or liquids from the interior of a well.
- G. **Closure:** The termination of any non-residential land use or activity regulated by this Ordinance.
- H. **Dewatering Wells:** A well installed to remove water from one or more geologic units to allow the installation, construction, or repair of foundations and other subsurface structures and equipment.

- I. **Dry well:** Any manmade structure beneath the ground surface designed or used for disposal of storm water.
- J. **Emergency Conditions:** A condition that is an immediate threat to public health, safety, or welfare or damage to livestock or property. The failure of a well to yield water is not in and of itself an emergency condition.
- K. **EPA:** U. S. Environmental Protection Agency.
- L. **Geothermal Well:** A well that supplies water for use solely to heat and/or cool a structure.
- M. **Health Department:** The Health Department of St. Joseph County Indiana.
- N. **Health Officer:** The Health Officer of the St. Joseph County Health Department or a duly authorized representative.
- O. **High Capacity Well:** A well that has the capability of producing seventy (70) gallons of water or more per minute.
- P. **IAC:** Indiana Administrative Code.
- Q. **IC:** Indiana Code.
- R. **IDEM:** Indiana Department of Environmental Management.
- S. **Injection Well:** Any well, designed or used for the subsurface emplacement of fluids through the well.
- T. **Irrigation Well:** A well that supplies water primarily for the purpose of providing water to vegetation and/or livestock.
- U. **ISDH:** Indiana State Department of Health.
- V. **Maximum Contaminant Level (MCL):** The maximum permissible level of a contaminant in potable water as determined by EPA or IDEM, whichever is more restrictive.
- W. **Monitoring Well:** A well installed to obtain hydrogeological information or to monitor the quality or quantity of groundwater.
- X. **Motor Vehicle Waste Recovery Well:** A shallow waste disposal system that receives or has received fluids from vehicular repair or maintenance activities, such as auto body or automotive repair, car dealerships, or other vehicular repair facilities.
- Y. **Municipal Water System:** A water system operated by a city, town, or county.
- Z. **Municipal Water:** Water obtained from a municipal water system.
- AA. **Non-Community Public Water System:** A public water system that pipes water for human consumption to at least fifteen (15) service connections used by individuals other than year-round residents for at least sixty (60) days a year or one that regularly serves twenty-five (25) or more people at least sixty (60) days a year.
- BB. **Non-Potable Water Well:** A well used to supply water for irrigation, geothermal systems, hydrogeologic monitoring, dewatering, fire suppression, waterscapes, or any other purpose except for drinking or culinary purposes.

- CC. Non-Residential/Non-Public Well:** Any well used to supply potable water that is not a public well or a residential well. Usually these are wells at commercial facilities where the water is used by less than twenty-five (25) people or less than sixty (60) days per year.
- DD. Oil:** Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with non-regulated wastes.
- EE. Operator:** Any person in control of, or having responsibility for the operation of a facility subject to this Ordinance.
- FF. Owner:** Any person who owns a property or part of a property or a facility or part of a facility subject to the requirements of this Ordinance.
- GG. Person:** Any individual, trust, firm, joint stock company, Federal agency, corporation (including a government corporation), limited liability company, partnership, co-partnership, company, estate, municipal corporation, City, School City, Town, School Town, School District, School Corporation, County, State Agency, association, State, municipality, commission, political subdivision of the State, any interstate entity or any other legal entity or their legal representative.
- HH. Potable Water:** Water intended and suitable for drinking or culinary purposes.
- II. Potential Pollution Source:** A facility, site, practice or activity that possesses the ability to damage groundwater.
- JJ. Private Water Supply:** One or more sources of water, including facilities for conveyance thereof, such as wells, springs, and pumps other than those serving a public water supply.
- KK. Public-Owned Treatment Works (POTW):** Any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "Municipality" as such device or system is defined by Section 502(4) of the Clean Water Act. This definition includes sewers, pipes or other conveyances only if they convey wastewater to a POTW providing treatment.
- LL. Public Water Supply:** Any wells, reservoirs, lakes, rivers, sources of supply, pumps, mains, pipes, facilities and structures through which water is obtained, treated as may be required and provided to the public through a water distribution system and that serves at least twenty-five (25) persons per day for at least sixty (60) days per year for drinking, domestic use, or other purposes, including state owned facilities, or that has at least fifteen (15) service connections.
- MM. Public Water System (PWS):** Any collection, treatment, storage, or distribution facilities used primarily to provide water to a public water supply. Public Water System as used in this Ordinance shall have the same meaning as Public Water Supply System in 327 IAC 8-4.1, The Wellhead Protection Rule", and defined at 327 IAC 8-4.1-1(19).
- NN. Public Well:** Any well serving a public water system.

- OO. Pump Installer:** Any person that installs a pump for a well or services a pump for a well.
- PP. Regulated Substance:** Any hazardous or toxic substance, petroleum, special waste, objectionable material or other substance:
- Regulated under rules adopted by the Indiana Solid Waste Management Board under IC 13-23-1-2.
 - Included under Section 101 of the Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. 9601),
 - Included under Subtitle C of the Solid Waste Disposal Act, as amended (42 U.S.C. 6921 through 6939), or
 - Petroleum or petroleum byproducts.
- QQ. Residential Well:** Any privately owned well intended to be used for potable water in either a one or two family dwelling.
- RR. Seepage Pit:** A leaching pit, dry well, or any other cavity in the ground that receives wastewater.
- SS. Septage:** The liquid and/or solid material in or removed from a septic tank, seepage pit, portable toilet, cesspool, wastewater lift station, holding tank or similar wastewater disposal system when the system is cleaned or maintained.
- TT. Siting:** The process of selecting an appropriate location for the installation of a well based on the requirements contained in this Ordinance.
- UU. Surface Impoundments:** A facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of wastes or wastes containing free liquids, and which is not an injection well.
- VV. Tank:** A stationary device designed to contain an accumulation of regulated substances and constructed of non-earthen materials (e.g., concrete, steel, plastic) that provide structural support.
- WW. Temporary Well:** A well installed to monitor or collect hydrogeologic or engineering data that is abandoned according to the requirements of this ordinance within thirty (30) days of installation.
- XX. USC:** United States Code.
- YY. Wastewater:** A combination of liquid and water-carried wastes from residence(s), commercial building(s), industry(s), and/or institutions, or any other facility together with any groundwater, surface water, or storm water that may be present.
- ZZ. Wastewater Disposal System:** All equipment and devices necessary for conveyance, collection, storage, treatment, and disposal of wastewater. This does not include land application equipment.
- AAA. Waterscape Well:** A non-potable well that supplies water for the maintenance of water features.

- BBB. Water Well:** Any artificial excavation that derives water from the interstices of the rocks or soil it penetrates and is intended to supply water for potable or non-potable uses.
- CCC. Water Well Permit:** A permit obtained from the Health Department for the installation of a water well for either potable or non-potable uses, excluding temporary wells, as defined herein.
- DDD. Well:** Any artificial excavation that penetrates or derives water from the interstices of the rocks or soil it penetrates including wells for potable or non-potable purposes.
- EEE. Well Driller:** A person or business that operates well drilling or driving equipment or engages in the drilling or driving of wells for hire.
- FFF. Well Drilling:** Any operation that produces or attempts to produce a well.
- GGG. Wellhead:** The entire well assembly.
- HHH. Well Owner:** The legal owner of the real estate containing the well site.
- III. Well Repair or Replacement:** For purposes of this ordinance a well repair is defined as any action, other than drilling or abandoning a well, that includes the alteration of the well casing or well screen.
- JJJ. Well Seal:** A removable arrangement or device used to cap a well or to establish and maintain a water-tight junction between the casing or curbing of a well and the piping or equipment installed therein, so as to prevent unwanted water, or other damaging material, from entering the well at the upper level.
- KKK. Well Vent:** An opening or outlet at the upper end of the well casing to allow equalization of air pressure in the well.
- LLL. Yield:** The quantity of water per unit of time, which may flow or be pumped from a well, when the pumping water level has remained stabilized for one (1) hour or longer.

24.20.060, Applicability

This Ordinance applies to the following types of water wells:

- A. Potable Wells:** Wells used for drinking water or culinary purposes. Under this Ordinance there are the following three types of potable water wells:
1. Residential wells,
 2. Non-residential/non-public wells, and
 3. Public wells.
- B. Non-Potable Wells:** All wells that are not to be used for drinking or culinary purposes including, but not limited to, irrigation wells, geothermal wells, monitoring wells, dewatering wells, waterscape wells, and fire suppression wells.
- C. Temporary Wells:** This Ordinance does not apply to wells installed to monitor or collect hydrogeologic or engineering data that are abandoned according to the requirements of this Ordinance within thirty (30) day of installation.

24.20.070, Licensing and Registration of Well Drillers

- A. State License:** Any person that installs or abandons a potable or non-potable water well or performs a well repair or replacement in St. Joseph County shall first be licensed by the State of Indiana in accordance with I.C. 25-39. et seq. "The Water Well Drillers Law".
- B. County Registration:** Any person that installs or abandons a potable or non-potable water well in St. Joseph County shall first obtain an annual registration from the Health Officer. A copy of the applicant's state license shall be provided when applying for a registration. The application shall be on a form provided by the Health Officer and shall include the information deemed necessary by the Health Officer. The registration shall expire on January 31 of each year. A licensed well driller shall be present during all well drilling or well abandonment activities.
- C. Exam:** To be eligible for a registration, applicants shall be required to pass an exam prepared and administered by the Health Officer on the requirements of the Well Drilling and Water Supply System Ordinance. The exam shall be an open book exam with a passing score of 80%. Persons who fail the test will be provided with the correct answers and shall be allowed to retake the exam one week after failing the exam. There shall be no fee for the exam.
- D. Surety Bond:** Each person applying for a well driller registration shall provide a surety bond payable to St. Joseph County Health Department in the penal sum of Ten Thousand Dollars (\$10,000.00), conditional upon faithful compliance with the provisions of this ordinance as it relates to work performed by the applicant, and agreeing to pay all damages, costs, expenses, and penalties caused by the applicant through failure to comply with such provisions. All such bonds shall expire and be renewed on January 31 of each year.
- E. Fees:** A non-refundable registration fee, as prescribed by the St. Joseph County Commissioners, shall be paid annually to the Health Department by any person applying for a registration to perform well drilling or abandonment in St. Joseph County.
- F. Suspension:** The Health Officer may suspend, repeal, or withhold a registration from any person who is more than thirty (30) days late in making full payment of a penalty prescribed in Sections 24.20.220 and 240 of this Ordinance.

24.20.080, Licensing and Certification of Water Laboratories

- A. State/EPA License or Certification:** Any laboratory that analyzes a water sample required by this Ordinance shall first be licensed or certified to perform the analysis by the state in which their laboratory is located or by the U. S. Environmental Protection Agency (EPA) and shall provide a copy of the current license or certification to the Health Officer.
- B. Suspension:** If the Health Officer determines that water analysis from a laboratory are unreliable, the Health Officer may exclude that laboratory from submitting water analysis and may reject all analysis from that laboratory for a period of up to one year from the date of the determination.

24.20.090, Permits:

A. Potable Water Well Permits:

1. The owner of the real estate on which a water well is to be installed or their authorized agent shall obtain a Water Well Permit for any well installed for potable water.
2. No person shall install a well until and unless a permit is first obtained from the Health Officer and posted in a conspicuous place on the premises, except under emergency conditions as provided in Section 24.20.090.B of this Ordinance.
3. Any person that installs or abandons a potable well shall meet all of the requirements of Section 24.20.070 of this ordinance.
4. Any person applying for a permit to install a potable water well shall submit an application to the Health Officer. The application shall:
 - a. Be on a form provided by the Health Officer,
 - b. Include the information deemed appropriate by the Health Officer,
 - c. Include a drawing made to scale by a registered well driller, licensed surveyor, professional engineer, professional geologist, registered soil scientist, or architect that contains the information specified by the Health Officer, and
 - d. Include a non-refundable permit fee, as prescribed by the St. Joseph County Commissioners, made payable to the Health Department.
5. The proposed location of the well shall be clearly and accurately marked on the property where it is to be installed in the field with a stake at the time of the onsite inspection by the Health Officer or the permit application may be denied.
6. The Health Officer will review the application and conduct an onsite inspection of the proposed location of the well.
 - a. If the Health Officer finds the application and the proposed well location to be in full compliance with this Ordinance, the Health Officer may issue a Water Well Permit.
 - b. If the Health Officer finds the application or the proposed well location not to be in full compliance with the Ordinance, the Health Officer shall advise the applicant why the application is being denied and the measures necessary to bring the application into full compliance with this Ordinance.
7. If a permit is neither issued nor denied in writing within ten (10) working days of the date of the application, the permit shall be considered issued and all other requirements of this Ordinance shall still apply.
8. The requirements of the water well permit shall not be considered fulfilled until the work meets all applicable portions of this Ordinance to the satisfaction of the Health Officer. Non-compliance shall be grounds for revocation of a water well permit, an order from the Health Officer to abandon the well, and the assignment of penalties by the Health Officer as described herein.

9. A permit shall be void if the installation is not completed within one (1) year of permit approval.
10. All public water wells shall be registered with the Health Officer and the owners shall report all sampling and test results to the Health Officer.

B. Emergency Conditions:

1. In rare instances where there is an immediate threat to public health, safety, or welfare or damage to livestock or other property, a registered well driller may take the appropriate action without first obtaining any permits required by this Ordinance provided the well driller takes the following actions. Takes the steps necessary to ensure that the action complies with all requirements of the Well Drilling and Water Supply Ordinance including all applicable separation distance listed in Section 24.20.120, 130, and 140.
 - a. Accepts full responsibility for the proper placement and construction of the well and agrees to make any appropriate and necessary corrective actions required by the Health Officer if the well is not properly located or installed.
 - b. Applies for a Water Well Permit for the well within 2 business days after installing the well.
2. The failure of a well to yield water is not in and of itself an emergency condition.
3. Any party who falsely claims that an emergency condition exists, shall be in violation of this Ordinance and subject to the enforcement provisions contained in Section 24.20.220 and 240.

C. Non-potable Well Permit:

1. The owner of the real estate on which a non-potable water well is to be constructed or their authorized agent shall obtain a Water Well Permit.
2. No person shall install a well until and unless a permit is first obtained from the Health Officer and posted in a conspicuous place on the premises, except as provided in Section 24.20.090.B of this Ordinance.
3. Any person that installs or abandons a non-potable well shall meet all of the requirements of Section 24.20.070 of this ordinance.
4. Any person applying for a permit to install a non-potable well shall submit an application to the Health Officer. The application shall:
 - a. Be on a form provided by the Health Officer,
 - b. Include the information deemed appropriate by the Health Officer,
 - c. Include a drawing made to scale by a registered well driller, registered surveyor, or professional engineer, professional geologist, licensed soil scientist, or architect that includes the information specified by the Health Officer, and
 - d. Include a non-refundable permit fee, as prescribed by the St. Joseph County Commissioners, made payable to the Health Department.

5. The proposed location of a non-potable well shall be clearly and accurately marked on the property where it is to be installed with a stake at the time of the onsite inspection by the Health Officer or the permit application may be denied.
6. The Health Officer will review the application and the proposed well location and may conduct an onsite inspection of the proposed location of the well.
 - a. If the Health Officer finds the application and the proposed well location to be in full compliance with this Ordinance the Health Officer may issue the water well permit.
 - b. If the Health Officer determines that the application or the proposed well location not to be in full compliance with this Ordinance, the Health Officer shall advise the applicant why the application is being denied and the measures necessary to bring the application into full compliance with this Ordinance.
7. If a permit is neither issued nor denied in writing within ten (10) working days of the application, the permit shall be considered issued and all other requirements of this Ordinance shall still apply.
8. The requirements of the water well permit shall not be considered fulfilled until the work meets all applicable portions of this Ordinance to the satisfaction of the Health Officer. Non-compliance shall be grounds for revocation of a water well permit, an order from the Health Officer to abandon the well, and the penalties prescribed by the Health Officer as described herein.
9. A permit shall be void if the installation is not completed within one (1) year of permit approval.

D. Well Abandonment Permits:

1. No person shall abandon a well until and unless a Well Abandonment Permit is first obtained from the Health Officer and posted in a conspicuous place on the premises.
2. Any person who abandons any type of water well listed in Section 24.20.060 shall have a current well drilling license.
3. No person shall disconnect a potable or non-potable well to connect to a public water supply unless a permit has been issued by the Health Officer to abandon the well being disconnected.
4. When a party applies for a permit to replace an existing water supply well, an application to abandon the existing well shall be made at the same time, except as provided below. The existing well shall be abandoned on the same day and by the same licensed well driller that installed the replacement well.
5. The Health Department may approve an application to not abandon a well that has been replaced if the following conditions are met:
 - a. The well is immediately put to a productive use. Such use shall be defined on the abandonment permit and shall be subject to the approval of the Health Officer.
 - b. The existing well cannot be located after due diligence has been made to locate the well. Due diligence shall, at a minimum, include excavating to a depth of five (5) feet in the most likely locations of the existing well,
 - c. The Health Officer grants approval to not abandon the well, and

- d. The applicable permit fee as prescribed by the St. Joseph County Commissioners has been paid to the Health Department.
6. The licensed well driller performing the well abandonment shall be responsible for properly abandoning the well for which a well abandonment permit has been issued. No one shall take any action to prevent a well driller from properly abandoning a well.
7. There shall be no fee to abandon a well.
8. Any well driller who abandons a well under a permit issued pursuant to this Ordinance shall notify the Health Officer by telephone of the time and date the well will be abandoned at least two hours prior to abandoning the well. No one shall abandon a well prior to the specified time.
9. Upon the abandonment of a well, the well driller shall clearly and accurately mark the location of the abandoned well with a stake if the well is outside of a structure. No person shall remove the stake until the Health Officer has inspected the abandoned well.
10. Any potable or non-potable well not in use for more than one (1) year shall be abandoned according to the requirements of the Health Officer.
11. The Health Officer may order the abandonment of any water well constructed without a valid permit or a well whose continued existence poses a threat to human health or the groundwater. Upon receipt of an order to abandon a well, the property owner shall contract with a licensed well driller who shall obtain a Well Abandonment Permit and abandon the well according to the schedule established by the Health Officer.

E. Water System Repair:

There shall be no permit for repairs to water systems that do not involve altering the well casing or screen. However whenever the sanitary seal is broken the equipment and well must be disinfected consistent with the requirements of Section 24.20.170 of this Ordinance.

F. Temporary Wells:

There shall be no permit for installing temporary wells. However, if a temporary well is not abandoned according to the requirements in Section 24.20.180 of this Ordinance the well shall lose its status as a temporary well and will be subject to all applicable requirements of this Ordinance.

G. Development of Rules and Regulations for Land Application Sites, Water Vending Machines, and Bottled Water Plants:

1. The County Board of Health may develop and implement rules and regulations for the permitting of
 - i. Sites for the land application of septic waste,
 - ii. Distribution of water from water vending machines, and
 - iii. Operation of plants to bottle water.
2. A permit and inspection fee, as determined by the St. Joseph County Commissioners, shall be paid to the Health Department at the time an application for a permit is filed for land application sites, distribution of water from vending machines, and operation of plants to bottle water.

24.20.110, Submission of Reports and Well Logs

A. Water Quality Report:

1. The owner of any potable water well installed under a permit issued pursuant to this Ordinance shall have the water analyzed as defined in section 24.20.170 of this Ordinance and will submit the analysis results to the Health Department within thirty (30) days of the installation of the well.
2. Any laboratory performing a water analysis for a water well installed under a permit issued pursuant to this Ordinance will submit the results of the analysis to the owner and the Health Officer within ten (10) days of the completion of the analysis.
3. The Water Quality Report shall include:
 - a. The address of the property where the sample was taken,
 - b. The results of the analysis,
 - c. The detection limits of the analytical methods used,
 - d. The date of the analysis,
 - e. An identification of any constituent that exceeded an EPA or State of Indiana Maximum Contaminant Level (MCL), and,
 - f. The signature of the person responsible for the analysis.

B. Well Log:

1. Within thirty (30) days of the completion of the well, the well driller shall submit a complete and accurate copy of the Indiana Department of Natural Resources Well Log, Record of Water Well, State Form 35680 (R4/4-92) to the Health Officer. The well log shall also contain the St. Joseph County water well permit number.
2. Each well driller shall also submit to the Division of Water of the Indiana Department of Natural Resources accurate records of each well drilled in accordance with the provisions of Indiana Code 25-39, "The Water Well Drillers Law". Such well drillers shall provide the Indiana Department of Natural Resources with the appropriate St. Joseph County Water Well Permit Number for each well drilled.
3. The well driller shall also furnish, upon request, any additional well construction information deemed necessary by the Health Officer to protect public health and safety or the groundwater.

C. Well Abandonment Log:

1. The well driller shall provide a well abandonment log to the Health Officer for any water well abandoned in St. Joseph County. The well abandonment log shall:
 - a. Be on a form provided by the Health Officer.
 - b. Contain the information required by the Health Officer.

- c. Include a drawing made to scale showing the location of the abandoned well.
 - d. Be received by the Health Officer within thirty (30) days of abandoning the well.
2. Complete accurate records shall be kept of the entire abandonment procedure to provide detailed records for future reference and to demonstrate to the Health Officer that the well was properly abandoned.
- D. Failure to Submit Reports or Logs:** Any party who fails to submit complete and accurate reports as specified in 24.20.110 A, B or C shall be in violation of the Ordinance.

24.20.120, Siting Potable Water Wells

A. General Requirements:

- 1. All new potable water wells shall be located at the highest point on the premises consistent with the general layout and surroundings, but in any case protected against surface drainage, ponding, and flooding and as far removed from any known or potential pollution source as the general layout of the premises and the surroundings permit.
- 2. All new potable water wells shall, in no case, be closer than the **applicable minimum distance** specified in Section 24.20.120.B.
- 3. When possible, a water supply well shall be installed hydraulically up gradient from any known or potential pollution source.

B. Separation Distances:

- 1. Potable water wells and pump suction lines, except for municipal water supply wells, shall maintain the following **minimum separation** distances from potential pollution sources.
- 2. Any and all potential pollution sources shall have and be maintained at the following minimum separation distances from potable water wells. No known or potential pollution source listed shall be located within the specified distance.
- 3. These distances are minimums and do not insure safety.
- 4. The minimum separation distances for high capacity wells shall be the same as listed for public wells.
- 5. The Health Officer may increase the minimum separation distances for any proposed well location or deny an application where there is a source of know or potential groundwater contamination that is a potential threat to public health and safety.
- 6. The Health Officer may decrease the minimum separation distance if the Health Officer determines that the separation distances can not be reasonably met and that public health and safety would not be threatened.

Minimum Separation Distances

Potential Pollution Source	Type of Potable Water Wells		
	Residential Wells	Non-Residential Non-Public	Public ¹ Wells
Any building overhang to the horizontal center of the well	5 feet	5 feet	5 feet
Building Foundation	10 feet	10 feet	10 feet
Independent Gear Water Drain, Rainwater Downspout, Foundation Drain, Sump Pump Pit	10 feet	10 feet	10 feet
Sanitary Sewer connected to Foundation Drain	15 feet	15 feet	15 feet
Storm Sewer connected to Foundation Drain	15 feet	15 feet	15 feet
Property Lines ² Also maintain minimum required distance from any source of contamination on adjoining properties	15 feet	25 feet	200 feet
Private residential underground fuel oil tanks	100 feet	100 feet	200 feet
Stream, Lake, Pond or Ditch, River, Shoreline or Drainage Tile	25 feet	50 feet	50 feet
Sanitary Sewers, Force Mains and Drains	50 feet	100 feet, ^{3,4}	200 feet ^{5, 6}
Subsoil Drain (absorption field perimeter drain), Sewer Pump, Lift Station	50 feet	50 feet	200 feet
Privies and Outhouses (to be constructed and maintained in accordance with ISBH Bulletin No. S.E. 11 - The Sanitary Privy")	100 feet	100 feet	200 feet
Storm Sewers	25 feet	100 feet	200 feet
Septic and Aerobic Digestion Tanks and Absorption Fields	50 feet	100 feet	200 feet ⁶
Seepage Pits	100 feet	100 feet	200 feet ⁶
Stables, Feeding Pens, Livestock Runs, Manure Piles, etc.	100 feet	100 feet	200 feet

Confined Feeding Operation	200 feet	200 feet	200 feet
Geothermal Heat Pump System Diffusion Well for a System Using Less Than 25,000 gallons per day (17.4 gpm)	50 feet	100 feet	200 feet
Geothermal Heat Pump System Diffusion Well for a System Using More Than 25,000 gallons per day (17.4 gpm)	100 feet	100 feet	200 feet
Minimum Separation Distance between Geothermal Heat Pump Systems and Sewers/Septic Tanks	100 feet	100 feet	200 feet
Above Ground Storage, Handling, Delivery or Packaging Areas for Regulated Substances	100 feet	100 feet	200 feet
Underground Storage of Regulated Substances	100 feet	100 feet	200 feet
Concrete or Membrane-Lined Agricultural Waste Pits	50 feet	100 feet	200 feet
Earthen Agricultural Waste Pits, Lagoons and Holding Ponds	500 feet	500 feet	500 feet
Composting Facility Active Area	200 feet	200 feet	200 feet
Land Application of Manure	200 feet	200 feet	200 feet
Land Application of Final Treated Wastewater Treatment Plant Effluent	200 feet	200 feet	200 feet
Land Application of Domestic Septage Disposal	500 feet	500 feet	500 feet
Ridge and Furrow Waste Disposal Site;	500 feet	500 feet	500 feet
Injection Wells	50 feet	100 feet	200 feet
Septage or Treated Sludge Disposal Area	500 feet	500 feet	500 feet
Sewage Treatment Lagoons or Wastewater Treatment Facility	500 feet	500 feet	500 feet
Existing, Closed or Abandoned Solid or Hazardous Waste Disposal Facility (Dumps/Landfills)	1,000 feet	1,000 feet	1,000 feet

Construction/Demolition Sites, and IDEM Restricted Waste Site Types 1, 2 and 3 as defined at 329 IAC 2-2-54 and 329 IAC 2-10	600 feet	600 feet	1,000 feet
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Footnotes:

¹The separation distances listed above for public wells are the maximum distances required. These distances may be reduced for a number of reasons including the type of facility serviced by the well, the number of people to use the system, and whether the water produced by the well is automatically disinfected prior to use. The installation and use of public wells is regulated by the Indiana Department of Environmental Management (IDEM) and the required separation distances are contained in 327 IAC 8.3.4. Any person applying for a County permit to install a public well shall provide documentation that they have first applied to IDEM to install the well. The separation distances determined by IDEM shall be adopted by the Health Department for the County permit unless a waiver is granted by the Health Officer.

²The clearance between a water well and the property line may include the right-of-way width of a road or street adjacent to the property if the required clearance is not otherwise available. Additional separation distance may also be obtained by easement from the adjacent property owner. The minimum required separation distance from any potential pollution source on any adjoining property shall be maintained.

³If it is necessary to locate sewer or drains closer than two hundred (200) feet to a potable water well or pump suction line in a mobile home park with twenty-five (25) or more lots, water works grade ductile iron pipe with mechanical joints or SDR 26 PVC pressure sewer pipe with compression fittings shall be used.

⁴If it is necessary to locate sewer, force mains or drains closer than one hundred (100) feet to a well or pump suction line, waterworks grade ductile iron pipe with mechanical joints, or SDR 26 PVC pressure sewer pipe with compression fittings must be used. Said piping shall not be constructed closer than thirty (30) feet to water sources.

⁵No wastewater treatment facility, sewer, force main or drain shall be closer than two hundred (200) feet to a public or municipal water supply well. In unprotected water-bearing formations, greater separation distances and other precautions may be necessary to minimize potential water contamination.

⁶The minimum separation distance between a residential well and/or an absorption field system may be reduced to not less than fifty (50) feet by the Health Department if the parcel in question was buildable as of January 1, 1999. However, it is highly desirable that this separation distance be greater than fifty (50) feet. This distances enumerated may be doubled for soil absorption systems, septic tanks, sewers, force mains, drains and other sources of contamination where there exist horizons, layers or strata within thirty-four (34) inches of the ground surface with a loading rate greater than seventy-five hundredths (0.75) gallons per day per square foot as determined from Table V of Section 49(4) of 410 IAC 6-8.1 "Residential Sewage Disposal Systems", unless that hazard can be overcome through system design.

- C. **Accessibility of Wells:** Every new well shall be located so that it will be reasonably accessible with proper equipment for cleaning, repair, treatment, testing, inspection and such other attention as may be necessary. With the exception of permitted public wells with well houses, wells shall be at least five (5) feet outside of any existing building overhang and at least ten (10) feet from any building foundation.
- D. **Relationship to Buildings:** No well shall be located so that the top of the well will be within the basement of any building nor under a building having no basement. Excluding pump houses, no well, after its construction, shall be allowed to be covered or made inaccessible by any building, permanent structure, earthen material, vegetation, concrete or other material
- E. **Relationship to Ground:** Wellheads, well casing, pumps, pumping machinery, exposed pressure tanks or suction piping shall not be located in any pit, room or space extending below the established ground surface, or in any room or space above the ground which is walled in or otherwise enclosed so that it does not have free drainage by gravity to the surface of the ground at all times, except when permitted by the Health Officer and under such conditions as the Health Officer prescribes.
- F. **Prohibition Against Interference:** No property owner shall construct or install anything, including landscaping, near a water well that will interfere with the inspection, maintenance, or abandonment of the well.
- G. **Additional Requirements:** The Health Officer may place additional requirements on the installation of new wells or the abandonment of existing wells to address specific conditions relative to public health and safety or protection of the groundwater. Any such conditions shall be attached to the well drilling or well abandonment permit.

24.20.130 Siting Non-potable Water Wells

- A. **General Requirements:** All non-potable water wells shall be installed at the highest point on the premises consistent with the general layout and surroundings and the technical requirements of the project, but in any case protected against surface drainage, ponding and flooding.
- B. **Separation from Pollution Sources:** All non-potable wells, except monitoring wells, shall be located as far removed from any known or potential pollution source as the general layout of the premises.
- C. **Hydraulically Up Gradient:** When possible, all wells, except monitoring wells, shall be installed hydraulically up gradient from any known or potential pollution source.
- D. **Accessibility of Wells:** A new well shall be located so that it will be reasonably accessible with proper equipment for cleaning, repair, treatment, testing, inspection and such other attention as may be necessary. Wells shall be at least five (5) feet outside of any existing building overhang and at least ten (10) feet from any building foundation except geothermal, dewatering, fire suppression and monitoring wells.
- E. **Relationship to Buildings:** No well, except monitoring wells, shall be located so that the top of the well will be within the basement of any building or under a building having no

basement. Excluding pump houses, no well, after its construction, shall be allowed to be covered or made inaccessible by any building, permanent structure, earthen material, concrete or other material.

- F. Relationship to Ground:** Wellheads, well casing, pumps, pump machinery, exposed pressure tanks or suction piping shall not be located in any pit, room or space extending below the established ground surface, or in any room or space above the ground which is walled in or otherwise enclosed so that it does not have free drainage by gravity to the surface of the ground at all times, except when permitted by the Health Officer and under such conditions as the Health Officer prescribes.
- G. Prohibition Against Interference:** No property owner shall construct or install anything, including landscaping, that will interfere with the inspection, maintenance, or abandonment of the well.
- H. Additional Requirements:** The Health Officer may place additional reasonable and necessary requirements on the location of wells regulated under the Ordinance on a case-by-case basis to protect the public health or safety of the groundwater. Any such requirements shall be attached to the well drilling permit.
- I. Separation Distances:** The separation distances identified in Section 24.20.110 for residential wells shall apply to all irrigation wells.

24.20.140, Siting of Wells Where Municipal Water is Available

A. Potable Wells

- a. The Area Plan Commission shall determine when connection to municipal potable water systems shall be required for newly proposed major and minor subdivisions.
- b. New or replacement potable water wells shall not be installed within a municipality unless the Health Department receives a written notification from the appropriate municipal water system that they have no objection to the installation of the well.
- c. The Health Department shall consult with a municipality prior to issuing a well permit for any potable well proposed within the municipality's master planning area. The Health Department shall also consult with the all municipalities at least semi-annually to solicit revisions to master planning areas.
- d. No potable water well permit shall be issued for a residential well for a property outside of a municipality if a municipal water line exists immediately adjacent to a property boundary.
- e. For a non-residential/ non-public or public well, if the total cost of engineering, materials, and installation of municipal water service to a business, less available public funding, does not exceed 150% of the total cost of engineering, materials and installation of an onsite well based on the average well depth of recent wells installed in the area where the facility is located, the extension of public water service to the facility is required and shall be paid by the property owner.
- f. The Health Department may issue a variance from the requirements listed above when there are circumstances that, in the opinion of the Health Department, make the connection to municipal water system unreasonable. Requests for variances shall be processed according to the procedures identified in Section 24.20.230.

- g. If a municipal public water system is or becomes available within three hundred (300) feet of a residential, non-residential/non-public, or public water system, the residential, non-residential/non-public, or public system may be required to make a connection to said municipal public water system, and use its water exclusively as a potable water source if the Health Officer determines it is necessary to protect public health or the groundwater. Upon such connection, the existing water system shall properly disconnect and said well shall be properly abandoned unless the well has been approved for other uses by the Health Officer.

B. Non-potable Wells

- a. New or replacement non-potable wells (except monitoring, geothermal, and dewatering wells) shall not be installed within a municipality unless the Health Department receives a written notification from the appropriate municipal water system that they have no objection to the installation of the well.
- b. Non-potable wells (except monitoring, geothermal, and dewatering wells) shall not be installed unless the following conditions are met:
 - i. Siting of the non-potable well shall meet all requirements contained in Section 24.20.130 for the installation of residential water wells.
 - ii. A permanent sticker shall be placed on the wellhead identifying the well as not suitable for human consumption.
 - iii. A permanent sticker or sign shall be placed on any point of use and any piping that extends into a building identifying the water line as not suitable for human consumption.
 - iv. No portion of the non-potable water system may be connected to any portion of a potable water system.
 - v. The owner shall allow an inspector designated by the Health Department to inspect the well and associated piping. If the property is served by municipal water, the inspector and the frequency of inspections shall be determined by the municipality and the costs of the inspection(s) shall be paid by the owner.
 - vi. If the Health Department determines there is a potential cross connection between a potable and non-potable water system, the owner shall install and maintain a backflow prevention device approved by the Health Department on the non-potable water system or take other actions required by the Health Department to prevent a cross connection.
- c. The Health Department may deny an application for a non-potable well if the Health Department determines that the well will adversely impact the quality of the groundwater or an existing water user.

C. Inadequate Water Supply Systems: If the Health Officer determines that a well serving a water system is inadequate to provide a safe source of drinking water, the Health Officer may order the owner of the well to bring the well into compliance with this Ordinance.

24.20.150, Administrative Control Areas

A. To protect the health and welfare of persons residing in St. Joseph County and to protect the integrity of any aquifer within the County, the Health Officer may establish administrative control areas to control the installation and use of wells in and near areas of known, suspected, or

potential contamination in the soil or groundwater. The Health Officer may administer controls through the following measures:

1. Denying an application to install a new well,
2. Requiring that water treatment systems be installed and maintained by the property owner,
3. Requiring surface water and groundwater sampling,
4. Requiring the abandonment of wells,
5. Requiring the installation of monitoring of wells,
6. Requiring property owners to connect to public water supplies when there is a threat to human health, and
7. Other measures deemed appropriate by the Health Officer.

B. The Health Officer shall provide public notice through the local media upon the creation of any administrative control area and shall make maps of the administrative control areas available to the public.

24.20.160, Water Well Installation Requirements

A. Construction Requirements for Potable Water Wells

1. The construction of all potable wells within St. Joseph County shall be in accordance with the applicable requirements of 312 IAC 13 the ISDH Bulletin S.E. 13, "On-Site Water Supply and Wastewater Disposal for Public and Commercial Establishments" and ISDH Bulletin P.W.S.2, "Standards for Construction of Private Water Wells and Water Systems".
2. All wells that will supply, in whole or in part, potable water shall:
 - a. Have a minimum casing diameter of 4 inches nominal inside diameter if to be used for drinking water,
 - b. Have a casing which will extend to the well screen,
 - c. Have a minimum depth of thirty-five (35) feet as measured from the ground surface to the top of the well screen and,
 - d. Have an available draw down of at least twenty (20) feet, as measured from the static water level to the top of the pump,
 - e. The minimum depths feet and the minimum available draw down identified if items c. and d. above need not be met if a basal shale or clay is encountered during the drilling of the well that prevents the well from being completed consistent with these requirements. In such circumstances the well will be completed with the maximum depth and available drawdown practical, and
 - f. Dug wells may not be installed in St. Joseph County except for dewatering wells.
3. Upon the completion of drilling a well, the well driller shall place a permanent identification on the well casing at least six inches above the ground that clearly states the name and state license number of the company that drilled the well.

4. No more than one residence may be connected to a residential water supply well unless the well is registered with and meets the requirements of the State of Indiana for a public well.

B. Water Well Yield:

1. After development and pumping at capacity for a minimum of one (1) hour, residential wells shall have a stabilized yield of at least five (5) gallons per minute and all other potable water supply wells shall have a stabilized yield at least equal to the pumping rate desired from the potable water supply well during normal usage.

C. Sand and/or Clay:

1. The potable water supply well shall be properly developed and screened so that when it is released for others to use and for ninety (90) days thereafter no sand or clay shall be present in the water which may cause damage to the plumbing or appliances attached thereto.
2. If sand or clay is present, the well driller or pump installer shall eliminate the production of sand or clay. In failing in such attempts, the well driller or pump installer shall provide equipment to remove such sand and/or clay so that the collection of same will not thereafter develop in the plumbing. If after additional equipment is installed, the potable water supply well continues to result in an accumulation of sand and/or clay, a new potable water well shall be installed.
3. Nothing herein shall be construed to make the well driller or pump installer liable for the cost of the aforesaid changes, but, instead, the same shall remain a matter of contract.

D. Pump Installation: The pump installation shall comply with the requirements as stated in the most current ISDH Bulletin, P.W.S.2, "Standards for Construction of Private Water Wells and Water Systems".

E. Hand Pumps: All hand pumps, stands, or similar devices shall be installed so that no unprotected opening connected with the interior of the pump exists. The pump spout shall be of the closed downward-directed type. All hand pumps shall be bolted to a mounting flange securely fastened to the well casing. The top of the casing shall extend at least one (1) foot above the face of the flange or at least 2 feet above any known flood water level.

F. Power Driven Pumps: All power-driven pumps located over wells shall be mounted on the well casing, a pump foundation, or a pump stand, so as to provide an effective well seal at the top of the well. Extension of the casing at least One (1) foot into the pump base will be considered an effective seal provided the pump is mounted on a base plate or foundation, in such manner to exclude dust and insects, and the top of the well casing is at an elevation at least two (2) feet above the 100 year flood level. Where the pump unit is not located over the well and the pump delivery or suction pipe emerges from the top thereof, a watertight expanding gasket or equivalent well seal shall be provided between the well casing and piping. A similar watertight seal shall be provided at the terminal of a conduit containing a cable for a submersible pump.

G. Check Valve: All submersible pumps shall have one check valve located in the discharge line above the pump and inside the casing.

H. Pump Bearing Lubrication:

1. Bearings of pumps shall be lubricated with water or oil of food grade quality.
2. If a pump delivering potable water is provided with a water lubrication tank, the tank shall be so designed, installed and maintained as to prevent damage of the water therein.
3. The oil reservoir shall be constructed to protect the water from damage. The lubrication system shall be designed, installed and maintained to minimize leakage of oil into the water. The oil shall be of food grade quality.

I. Pumphouses: Unless the power-driven pump installation is of weatherproof and frost proof construction, a weatherproof and frost proof structure housing the pump shall be constructed permitting access to the pump for maintenance and repair work. The pumphouse floor shall be constructed of concrete and shall slope away in all directions from the well or suction pipe.

J. Protection Against Freezing: Discharge lines and vacuum lines from the well to the foundation of any buildings shall be protected against freezing.

K. Well Vents: This Section shall also apply to remediation wells. All well vents shall be piped water-tight to a point not less than twenty-four (24) inches above the 100 year flood level and, to the top of the well casing. Such vent opening and piping shall be of sufficient size to prevent clogging by frost and in no case be less than one-quarter (1/4) inch in diameter. The terminals of vent pipes shall be shielded and screened to prevent the entrance of foreign matter and preferably turned down. If toxic or flammable gases or regulated substances are vented from the well, they shall be treated as required by the Health Officer, and all necessary permits shall be obtained, and the vent shall extend to the outside atmosphere at a point where the gases will not produce a health hazard or safety hazard. Openings in pump bases shall be sealed water-tight

L. Suction or Non-Pressure Lines: All buried suction pipe or non-pressure lines are prohibited with the exception of well points used temporarily during construction.

M. Materials Prohibited: No material will be used in the well or pump installation that will result in the delivered water being toxic or having an objectionable taste or odor as defined by the American Water Works Association Standards (AWWA). All metallic and non-metallic materials shall have sufficient structural strength and other properties to accomplish the purpose for which installed. Flexible or non-rigid plastic pipe shall not be used for suspending submersible pumps, unless having the physical properties to withstand the torque and load to which it is subjected. Plastic pipe shall not be used unless bearing the approval of the National Sanitation Foundation and unless having the physical properties to withstand the torque and load to which it is subjected. Materials with lead or asbestos are prohibited.

N. Offset Pumps and Sampling Faucet Location: Offset pumps and sampling faucets shall be located where they are readily accessible. They shall not be located in a crawl space unless the crawl space is drained to the ground surface beyond the crawl space either by gravity or by means of a sump pump, and a minimum of four (4) feet of clear working space is provided between the floor of the crawl space and the floor joist in the pump area. If located in a crawl space, the pump shall be located within five (5) feet of the point of entry. The access opening should be at least two (2) feet high and two (2) feet wide. Any part or accessory to the water system, which requires routine maintenance, shall not

be installed in a crawl space unless that crawl space meets the requirements of the provisions of this Ordinance.

O. Pressure Tanks: Pressure tanks or approved substitutes, used as part of the water system, shall be of such size as to prevent excessive wear of the pump due to frequency of starting or stopping.

P. Wellhead Height: All wellheads shall extend above the ground surface for a minimum of one (1) foot and two (2) feet above the 100 year flood level.

Q. Non-Potable Well Installation Requirements:

1. All non-potable water systems shall be clearly labeled as non-potable at each point of use, on the wellhead, and on any piping located inside of any structure. The non-potable labels shall be maintained and replaced as necessary to ensure the well and piping is labeled until the well is abandoned.

2. The piping for non-potable wells shall not be connected to any potable water system.

3. Upon the completion of drilling a well, the well driller shall place a permanent identification on the well casing at least six inches above the ground that clearly states the name and state license number of the company that drilled the well.

4. All wellheads shall extend above the ground surface for a minimum of one (1) foot and two (2) feet above the 100 year flood level.

24.20.170, Disinfection and Sampling Procedures

A. Disinfection of Drilling and Maintenance Equipment:

1. Before installation of a potable water well or breaking the sanitary seal on an existing well, all well construction, and maintenance equipment and applicable materials shall be thoroughly disinfected with a solution adequate to kill any pathogens present. Pumping equipment and gravel used in gravel wall wells shall be disinfected before being placed in service for general use.

2. To prevent damage of the potable water well or aquifer, it is desirable to maintain a chlorine residual of one-hundred (100) parts per million in the well hole during the drilling process.

3. The casing pipe shall be thoroughly swabbed to remove oil, grease, and joint dope, using alkalies as necessary to obtain clean surfaces.

B. Disinfection of Water System:

1. The well and appurtenances thereto shall be disinfected according to the specifications of the Health Officer. Such treatment shall be performed prior to any use of water from the system when the potable water supply well work is finished and when a pump is installed or reinstalled. If the two operations are performed on the same day, only the latter disinfection shall be required.

2. The disinfection of the water system shall include the water in the well pipe, gravel used in gravel well construction, well pipe, pumping equipment, water storage tank(s) and all in-house plumbing including any existing water heater, clothes washing machine, and dishwasher.

3. If, after the water in the system has been analyzed according to the requirements of this Ordinance, the water in a potable water well exceeds Maximum Contaminant Levels (MCL) for coliforms or E. coli bacteria, it shall be disinfected again by the well driller or pump installer, sampled and analyzed according to the requirements of this Ordinance.
4. The well driller or pump installer who performed work on the system shall be responsible for properly disinfecting the water system and for repeating the disinfection once, if the water exceeds MCLs. The costs and responsibility of any further disinfecting shall be bourn by the owner of the water system unless the water system was not properly disinfected by the well driller.
5. Disinfection of water systems shall be performed only by a well driller with a current County well drillers registration or a plumber licensed to perform work in St. Joseph County. The Health Officer recommends that owners not attempt to disinfect their wells.
6. The Health Department shall issue and revise, as deemed necessary, procedures for disinfecting water systems. All parties disinfecting water systems pursuant to this Ordinance shall follow the procedures issued by the Health Officer.

C. Water Sampling: All potable and irrigation wells shall be sampled as described below.

1. After the water system has been disinfected the water system shall be pumped to remove all the disinfectant and sampled.
2. All water samples shall be properly collected from an appropriate sampling faucet and analyzed using the analytical methods listed in 40 CFR parts 141 or 143 or otherwise approved by the Health Officer.
3. For public wells, the water analysis must demonstrate the water to be of satisfactory bacteriological and applicable chemical water quality before the well may be placed in service.
4. All water samples shall be collected in accordance with procedures provided by the Health Officer.
5. A copy of any required laboratory and field analysis shall be submitted to both the Health Officer and the potable water supply well owner by the laboratory performing the analysis.
6. If the first sample does not provide satisfactory results the water supply well shall be either disinfected or decontaminated until the test results are satisfactory or the well is abandoned.
7. For the purposes of this Ordinance, any potable water well is contaminated when the water withdrawn from it is found to contain any contaminant or pollutant which is present in a concentration exceeding any MCL or when the Health Officer determines that the water provided by such well is a health hazard.

8. Each new or replacement potable water supply well shall be analyzed. The analysis shall include the following and any other tests as deemed reasonable and ordered by the Health Officer to the extent that such tests protect against a health threat:
 - a. Total Coliform
 - b. E. coli
 - c. Nitrates (NO₃)
 - d. Fluoride
 - e. Arsenic
 - f. Sulfate
 - g. Residual chlorine
 - h. Temperature (laboratory)
 - i. pH (laboratory)
9. If a well tests positive for residual chlorine, it shall be flushed, resampled, and reanalyzed for coliforms and E. coli.
10. The Health Officer may order that no water shall be used for any purpose from a potable water well if the Health Officer has information indicating that the water exceeds an MCL. In such case, no person shall use such water until testing demonstrates that the water meets all MCLs.
11. The costs of the laboratory tests shall be paid by the owner.

24.20.180, Well Abandonment Procedures

- A. Unsealed or unplugged abandoned wells constitute a health hazard to public health, safety, welfare, and to the preservation of the groundwater resource because an improperly abandoned well might serve as an intentional or unintentional source of contamination.
- B. All wells shall be abandoned in a manner that restricts the movement of water within the well casing and annular space surrounding the well casing to the zone in which it originated and in a manner determined by the Health Officer.
- C. The preferred method of abandoning wells is to remove the well casing and fill the well with a bentonite slurry or, at a minimum, bentonite pellets.
- D. Any well existing or determined to be existing without a proper well seal shall be abandoned upon an order from the Health Officer to do so. Wells shall be abandoned as specified by the Health Officer and in accordance with 312 IAC 13. Any additional requirements may be approved by the Health Officer.
- E. Any well not in use for over one year may be required to be properly abandoned by the Health Officer.

24.20.190, Well Maintenance Procedures

- A. It shall be the responsibility of the owner of a well to maintain a water well on their property in accordance with the provisions of this Ordinance. Any defect that exists or occurs in any well or abandoned well that could cause damage to the well water or the aquifer shall be corrected immediately by the owner upon the order of the Health Department.
- B. All water wells shall be protected against breakage through accident and secured from vandalism. The owner of a well shall be responsible for corrective action caused by contamination that enters a water system or the groundwater through their well.
- C. Any well deemed by the Health Officer to be in a vulnerable location shall be protected against breakage through accident. Means to protect the well may include guard posts, locking caps, fences, installation in an invulnerable location, and other such means to protect the well from undesired intrusion as directed by the Health Officer.
- D. No person shall maliciously, willfully, or negligently break, damage, destroy, uncover, cover, deface, or tamper with any structure, appurtenance, property, or equipment which is a part of or used in conjunction with a public or private water supply or which could result in damage to the soil or groundwater (unless such activity has been approved or permitted by the Health Officer). Any such action shall be a violation of this Ordinance.
- E. All wells requiring permits shall be tagged with a Health Department well identification number. Either this tag or a replacement tag shall remain on the well until its abandonment. It shall be a violation of this Ordinance to remove said tag.

24.20.210, Reporting Requirements Substitution

In the case where a report requiring information of the same character must be filed to meet a State or Federal requirement, the report may be copied and submitted to the Health Officer in lieu of otherwise applicable reporting requirements under this Ordinance. Any of the above information required, not included in the report, must be submitted additionally.

24.20.220, Enforcement

- A. **Authority to Adopt Rules and Regulations:** The County Board of Health may adopt, amend or rescind any rules and regulations and standards as deemed necessary for proper enforcement and to carry out the purposes and intent of this Ordinance. This shall be accomplished using public comment periods, public meetings, and public hearings, as appropriate, in accordance with State law and in consultation with the Water Resources Advisory Board.
- B. **Right-of Entry Upon Premises:** The Health Officer or an authorized representative, bearing proper credential and identification, may enter upon and inspect private property, after due notice, for such purposes as inspections, observation, measurement, sampling, testing and records examination necessary to carry out the provisions of this Ordinance.
 - 1. Upon the receipt of an application to install a well, the Health Officer, shall be permitted to inspect the location, installation, condition, and sampling of the wells at any stage.

2. In the event a person who has common ownership over a building, structure or land does not permit an inspection while work is being performed pursuant to a permit issued through this Ordinance, said permit shall be immediately cancelled and all such work shall be immediately suspended. The work may only commence upon the issuance of a new permit and a notification by the Health Officer that the work can continue.
 3. In the event a person who has common ownership over a building, structure or land does not permit an inspection, the inspection may be rescheduled and the person shall be notified by United States Certified Mail. Failure of such person to thereafter permit an inspection will be sufficient grounds and probable cause for a court of competent jurisdiction to issue an administrative warrant for the purpose of inspecting, observing, measuring, sampling, testing or examining records necessary to carry out the provisions of this Ordinance.
 4. In the event a building, structure or land appears to be vacant or abandoned and the property owner cannot be readily contacted in order to obtain consent for an inspection, the Health Officer may enter into or upon any open or unsecured portion of the premises in order to conduct an inspection.
- C. Reimbursement of Health Department Expenses:** Any person violating any provision of this Ordinance shall become liable to the Health Department for any expense, loss or damage occasioned it by reason of such violation.
- D. Issuance of Notice of Violations:** Whenever the Health Officer determines there are reasonable grounds to believe that there has been a violation of any provision of this Ordinance; the Health Officer shall give notice in writing of such violation to the person or persons responsible thereof, and to any known agent of such Person. Such notice shall:
1. Include a statement of reasons why the notice of violation is being issued.
 2. Allow a reasonable time for the performance of any act it requires.
 3. Be served upon the Owner or his agent, or the operator, as the case may require; provided that such notice shall be deemed to be properly served upon such Owner or agent, or upon such operator, if a copy thereof is served upon him personally, or if a copy thereof is sent by certified mail to his last known address, or if a copy thereof is posted in a conspicuous place in or about the dwelling affected by the notice, or if he/she is served with such notice by any other method authorized or required under the laws of this State.
 4. Contain an outline of required remedial action.
 5. Describe the penalty that is imposed for non-compliance.
- E. Request for Hearing:** Any person affected by a notice of violation of the Ordinance issued by the Health Officer may request and shall be granted a hearing on the matter before the Health Officer, provided that such person shall file with the office of the Health Officer by mail postmarked or hand delivered, within fifteen (15) days after service of the notice. The request for a hearing shall be written and shall set forth a brief statement of the grounds thereof. Upon receipt of such petition, the Health Officer shall arrange a time and place for such hearing and shall give the petitioner written notice thereof. Such hearing shall be held as soon as practicable after the receipt of a request thereof. At such hearing the petitioner shall be given an opportunity to be heard and to

show cause why such notice should not be complied with. The Health Officer shall sustain, modify, or withdraw the notice to the petitioner as soon as practical and in no case later than fifteen (15) days following the hearing.

F. Appeals of Health Officer's Determination:

1. Any decision rendered by the Health Officer pursuant to a hearing may be appealed to the County Board of Health provided that an appeal is filed with the Health Officer by mail postmarked or hand delivered, within fifteen (15) days after a decision is issued by the Health Officer. The appeal shall contain a written request for a hearing and a brief statement of the grounds thereof. Upon receipt of such petition, the Health Officer shall arrange a time and place for a hearing with the County Board of Health and shall give the petitioner written notice thereof. Such hearing shall be held as soon as practicable after the receipt of a request thereof. At such hearing the petitioner shall be given an opportunity to be heard and to show cause why such notice should not be complied with.
2. After a hearing, the County Board of Health shall sustain, modify, or withdraw the decision of the Health Officer as soon as practical but in no case more than thirty (30) days after the hearing. If the Board of Health sustains or modifies such notice, it shall be deemed to be an order. Any notice properly served shall automatically become an order.

G. Issuance of Emergency Orders: Whenever the Health Officer finds that an emergency exists which requires immediate action to protect the public health, the Health Officer may, without notice or hearing, issue an order reciting the existence of such an emergency and requiring that action be taken as the Health Officer deems necessary to meet the emergency. Notwithstanding any other provisions of this Ordinance, such order shall be effective immediately. Any person receiving such an order may seek a hearing under subparagraphs E and F above while carrying out such order, and shall have the right to recover any of its response costs to the extent that the order or any portion thereof is found to have been arbitrary or capricious or not otherwise in accordance with law. After such consideration, depending upon the finding as to whether the provisions of this Ordinance have been complied with, the Health Officer shall continue such order in effect, modify it or revoke it.

24.20.230, Variance

The Health Officer shall approve, amend, or disapprove a written petition for a variance, exemption, or exception from provisions of this Ordinance, as soon as practical after receiving the request and in no case later than thirty (30) days after the petition is filed. A decision by the Health Officer may be appealed to the County Board of Health for consideration at their next regularly scheduled meeting. The County Board of Health shall render a decision in the matter as soon as practical and, in no case, later than thirty (30) days after the meeting date.

24.20.240, Penalties

- A. Notice of Violation:** Any person found to be in violation of any provision of this Ordinance shall be served by the Health Officer with a written order stating the nature of the violation, remedies for correcting the violation, and a time limit for satisfactory correcting the violation, and the fines, if any, imposed for the violation.
- B. Penalties:** Any person determined by the Health Officer to be in violation of this Ordinance shall be punished for each offense by a penalty established by the Health Officer of not more than Five Hundred Dollars (\$500.00); for the first offense, not more than One Thousand Dollars (\$1,000.00) for the second, and by not more than One Thousand Five Hundred Dollars (\$1,500.00) for each subsequent offense. Each day after receiving a notice of violation from the Health Officer shall constitute a distinct and separate offense.
- C. Liability for Health Department Costs:** Any person violating any provisions of this Ordinance shall become liable to the Health Department for any expense, loss, or damage occasioned it by reason of such violation, including the costs for labor, supplies, equipment, and services.

24.20.250, Severability

If any section or part of this Ordinance be for any reason held unconstitutional or invalid by a court of competent jurisdiction, that holding shall not affect the validity of the remaining portions of the Ordinance, but the remaining portions shall be and remain in full force and effect.

24.20.260, Disclaimer of Liability

- A. Health Department Liability:** The Ordinance shall not create liability on the part of the Health Department or any officer, employee or agent thereof for any damage that may result from reliance on this Ordinance or on any administrative decision lawfully made thereunder.
- B. Inspections:** All inspections shall be at the discretion of the Health Officer and nothing in this Ordinance shall be construed as requiring the Health Officer to conduct any inspection nor shall any inspection imply a duty to conduct any other inspection. Nothing in this Ordinance shall be construed to hold the Health Officer responsible for any damage to persons or property by any failure to make an inspection or reinspection or for inspections that failed to identify unacceptable conditions or procedures.

PASSED AND ADOPTED this ____ day of _____, 2005, by the following vote:

Appendix B

Access Agreement with Mr. Rob Emmans

CONSENT FOR ACCESS TO PROPERTY AND ENVIRONMENTAL RESPONSE

I, **Rob Emmans**, hereby grant permission to the United States Environmental Protection Agency (U.S.EPA), the Indiana Department of Environmental Management (IDEM) and their agents and employees to enter upon and access property owned by me and described as follows: Five acres in Penn Township, St. Joseph County, Section 32, T. 38N., R.4E., at 11303 Edison Road, Osceola, Indiana.


Access is granted to the above-cited agencies to enable them to perform remedial design/remedial action and undertake any and all additional response actions, deemed necessary by either agency and described in work plan developed and approved by IDEM and/or U.S. EPA for the Galen Myers Site. Activities that may take place at this site include:

- 1) the taking of such soil, water, and air samples as may be determined to be necessary;
- 2) the sampling of any solids or liquids stored or disposed of on-site;
- 3) the drilling of holes and installation of monitoring wells for subsurface investigation;
- 4) other actions related to the investigation of surface or subsurface contamination;
- 5) the taking of response action including removal, disposal of hazardous waste and any contaminants from the site.
- 6) the continual monitoring of groundwater through these permanently installed groundwater monitoring wells.

My consent to allow access to the property is not an admission of any liability or responsibility to reimburse IDEM and/or U.S. EPA for costs. However, I acknowledge that I have been informed, by IDEM, of the agencies concerns over developing this property including but not limited to the potential exacerbation of contamination that may arise from the development of the property. Property owner agrees to restrict the use of the property by filing deed restrictions on this property consistent with notice attached to the agreement labeled "Exhibit 1". I acknowledge that neither IDEM nor U.S. EPA has agreed to release me from any liability under any state or federal authority.

IN WITNESS WHEREOF, I Rob Emmans, have executed two (2) copies of the Consent for Access To Property and Environmental Response, each of which shall be deemed an original.

Property Owner:

By: 

Date: July 21, 1997

Notary Form Witness:

STATE OF INDIANA)
ST. JOSEPH COUNTY) SS:

Before me, the undersigned Notary Public, in and for said County and State, on July 2 personally appeared Rob Emmans and acknowledged the execution of the above and foregoing for access to property and environmental response.

Dated: July 21, 1997

My Commission Expires: 12-22-2000

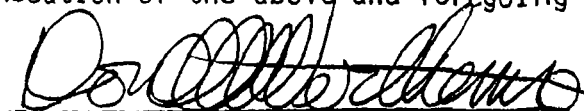

Donald E. Wertheimer, Notary Public
Resident of St. Joseph County, IN

EXHIBIT 1

The owner must deed restrict the land in the following ways:

- Prevent any on-site groundwater development; wells should not be installed by any owner of the property.
- Restrict any excavation to the top 3-5 feet of soil. Any construction beyond this depth may involve exposure to groundwater and soil gas vapors contaminated with trichloroethylene (TCE), which is a toxic and highly carcinogenic (cancer) chemical. The groundwater at the site has been measured at 8 feet below the ground surface. The depth to groundwater is seasonally variable.
- Ensure that all individuals (employees of the utilities and developer, builder, etc.) must be aware of the site contamination conditions and must be briefed about the health and safety requirements to be followed while performing any type of house related construction work.
- Accept the responsibility of protecting existing on-site and new monitoring wells to be installed during the Remedial Design/Remedial Action phase. The owner must provide free and unrestricted absolute access to the wells to any IDEM/USEPA authorized personnel at any time during RD/RA process.

Appendix C

February 13, 2005, South Bend Tribune Public Announcement

PUBLISHER'S AFFIDAVIT

Indiana Department of Environmental Management Announces Five-Year Review of Cleanup Actions at the Galen Myers Superfund Site

The Indiana Department of Environmental Management (IDEM) is conducting a second Five-Year Review of the remedial actions implemented at the former Galen Myers Dump/Drum Salvage (Galen Myers) Superfund Site.

The Superfund law requires a Five-Year Review of a cleanup, when hazardous wastes remain at a site. The review includes an evaluation of background information, cleanup requirements, and the effectiveness of the cleanup and maintenance and monitoring efforts at the site.

The Galen Myers site is located at 11303 Edison Road in Penn Township, St. Joseph County, Indiana. From approximately 1970 to 1983, a drum reclamation operation was located at the property. The soil was contaminated with various volatile organic compounds (VOCs) and semi-volatile organic compounds. The groundwater was contaminated with various VOCs.

In 1985, the U.S. Environmental Protection Agency (EPA) conducted a removal action and removed flammable solids, crushed drums and contaminated soils from the site. The EPA listed Galen Myers as a Superfund Site in 1989. Field investigations were conducted in 1993 and 1994 to characterize the extent of soil, subsurface, and groundwater contamination at the site. Trichloroethene (TCE) was identified as the primary contaminant of concern for groundwater. A Record of Decision (ROD) for the site was signed in 1995, which documented EPA and IDEM's selected remedy for the site. This remedy included excavation of TCE contaminated on-site soil; extension of alternative water supply from Mishawaka to the affected residential area; continued natural attenuation of the groundwater; long-term monitoring of the groundwater and St. Joseph River; and implementation of institutional controls to prohibit installation of wells on the site and in the residential area affected by the TCE contaminated groundwater.

Based on soil sampling results collected during Remedial Design activities which were initiated by IDEM in 1997, the Agencies concluded that further on-site soil excavation was not required since the levels of contamination were below the action limits. An Explanation of Significant Difference was signed in September 1998 describing this modification to the ROD. IDEM also conducted additional groundwater characterization efforts during Remedial Design.

Information about the Galen Myers site is available at the Mishawaka-Penn Public Library (Bittersweet Branch), 802 Bittersweet Road, Mishawaka, Indiana. The Five-Year Review Report will be available in September 2005.

For further information or to comment, please contact Resa Ramsey, Project Manager, IDEM, Federal Programs Section, 100 North Senate Avenue, Room 1101, Indianapolis, IN 46204-2241, phone (317) 234-0353 or via e-mail at rramsey@dem.state.in.us

11: 2: 13

State of Indiana }
St. Joseph County } SS:

Personally appeared before me, a notary public in and for said county and state, the under-

signed Carol Smith who, being duly sworn, says

that s/he is Advertising Director of the

South Bend Tribune, a Daily & Sunday newspaper of

general circulation printed and published in the English language in the (city) of _____

South Bend in state and county aforesaid, and that the printed

matter attached hereto is a true copy, which was duly published in said paper for 1

time s, the dates of publication being as follows:

February 13, 2005

Tax ID # 35-138-1571

Carol Smith

Subscribed and sworn to before me this 13th day of February 2005

Geraldine Dickey

Geraldine Dickey

Notary Public

Resident of St. Joseph County

My commission expires January 28, 2009

Appendix D
List of Documents Reviewed

Roy F. Weston, Inc., Ecological Assessment Report Galen Myers Dump/Drum Salvage Site, April 1995

Roy F. Weston, Inc., Baseline Risk Assessment Report Galen Myers Dump/Drum Salvage Site, April 1995

Roy F. Weston, Inc., Remedial Investigation Report Galen Myers Dump/Drum Salvage Site, June 1995

Roy F. Weston, Inc., Supplemental Baseline Risk Assessment Report Galen Myers Dump/Drum Salvage Site, July 1995

Roy F. Weston, Inc., Feasibility Study Report Galen Myers Dump/Drum Salvage Site, July 1995

IDEM, Declaration for the Record of Decision, September 29, 1995

St. Joseph County Health Department, Well Drilling and Water Supply Systems Ordinance, September 15, 1998

Baker Environmental, Inc., Remedial Design Field Investigation Report for the Galen Myers Dump/Drum Salvage Site, September 25, 1998

IDEM, Explanation of Significant Differences, September 30, 1998

IDEM, Five-Year Review Report, September 28, 2000

Baker Environmental, Inc., Interim Remedial Action Completion Report Galen Myers Dump/Drum Salvage Site, December 2003

St. Joseph County Health Department, Well Drilling and Water Supply Systems Ordinance, April 12, 2005

Relevant site correspondence

Appendix E

June 8, 2005, Site Inspection Photographs

Galen Myers Dump/Drum Salvage Superfund Site
Photographs Taken On June 8, 2005



Current house located at 11303 Edison Road (view northwest)



Monitoring wells MW-04, MW-05, and MW-06 (view west)



Back yard of 11303 Edison Road (view southwest)



Access lane heading back into wooded area of 11303 Edison Rd.



Vehicles and debris scattered throughout the heavily vegetated area along access lane in back portion of 11303 Edison Road (view east)



Two poly tanks and two 55-gal drums (empty) used during past IDEM groundwater sampling events to store purge water prior off-site disposal (view east)



Woodchip piles near the northeast area of 11303 Edison Rd.
(view south)



Heavily vegetated area at north end of 11303 Edison Rd.



Monitoring wells MW-07, MW-08, & MW-09 (view east)



View south across Edison Road from 11303 Edison Rd. driveway



View southwest of "Penter's Pond"



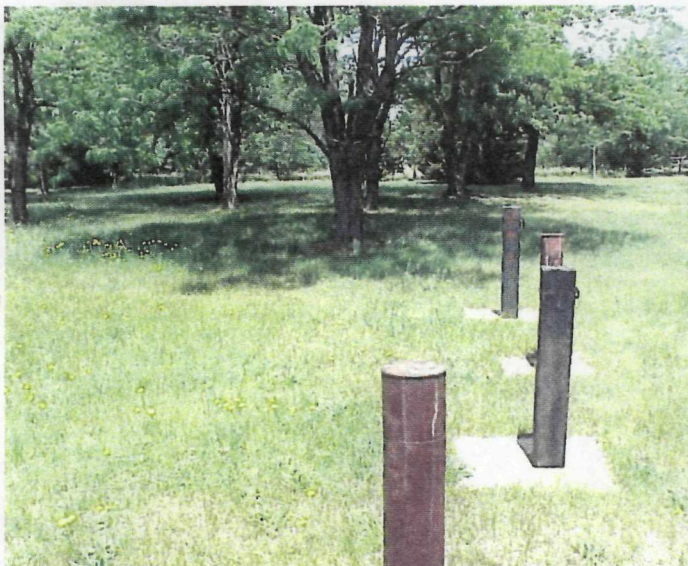
Monitoring wells MW-15 & MW-16 (view east)



View east from Birch Road of area around MW-33



View west from Birch Road of area near MW-31



View north of MW-03, MW-12, MW-02, & MW-01



View west of area near MW-25 & MW-26



View south of MW-24

Appendix F

June 8, 2005, IDEM Letter Regarding Five-Year Review Site Inspection



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

June 8, 2005

Dear Resident:

Re: Galen Myers Dump/Drum Salvage Superfund Site

On February 13, 2005, Indiana Department of Environmental Management (IDEM) published a public notice in the classified section of the South Bend Tribune regarding the Five-Year Review of cleanup actions implemented at the Galen Myers Superfund site. As part of the Five-Year Review process, I conducted the site inspection and resident interviews today. Sorry, I missed you during my visit. For further information or to comment, please contact me by e-mail (rramsey@idem.IN.gov), phone (317) 234-0353, or at

Indiana Department of Environmental Management
100 North Senate Avenue, Room 1101
Indianapolis, IN 46204-2251

The Superfund law requires a Five-Year Review of a cleanup when hazardous wastes remain at a site. The review includes an evaluation of background information, cleanup requirements, and the effectiveness of the cleanup and maintenance and monitoring efforts at the site. The Galen Myers Superfund site is located at 11303 Edison Road in Penn Township, St. Joseph County, Indiana. From approximately 1970 to 1983, a drum reclamation operation was located at the property. The soil was contaminated with various volatile organic compounds (VOCs) and semi-volatile organic compounds. The groundwater was contaminated with various VOCs.

In 1985, the U.S. Environmental Protection Agency (EPA) conducted a removal action and removed flammable solids, crushed drums and contaminated soils from the site. The EPA listed Galen Myers as a Superfund Site in 1989. Field investigations were conducted in 1993 and 1994 to characterize the extent of soil, subsurface, and groundwater contamination at the site. Trichloroethene (TCE) was identified as the primary contaminant of concern for groundwater. A Record of Decision (ROD) for the site was signed in September 1995, which documented EPA and IDEM's selected remedy for the site. This remedy included excavation of TCE contaminated on-site soil; extension of alternative water supply from Mishawaka to the affected residential area; continued natural attenuation of the groundwater; long-term monitoring of the groundwater and St. Joseph River; and implementation of institutional controls to prohibit installation of wells on the site and in the residential area affected by the TCE contaminated groundwater.

Based on soil sampling results collected during Remedial Design activities initiated by IDEM in 1997, the Agencies concluded that further on-site soil excavation was not required since the levels of contamination were below the action limits. An Explanation of Significant Difference was signed in September 1998 describing this modification to the ROD. IDEM also conducted additional groundwater characterization during Remedial Design.

Additional information about the Galen Myers Superfund site is available at the Mishawaka-Penn Public Library (Bittersweet Branch), 602 Bittersweet Road, Mishawaka, Indiana. The Five-Year Review Report will be available in September 2005.

Sincerely,

A handwritten signature in black ink, reading "Resa L. Ramsey". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Resa L. Ramsey
Federal Programs Section
Office of Land Quality

RLR: tr

cc: Rex Osborn, IDEM